Electronic Technology
Standards

Nevada State Board of Education

Nevada Department of Education

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Vision

All Nevada students are equipped and feel empowered to attain their vision of success

Mission

To improve student achievement and educator effectiveness by ensuring opportunities, facilitating learning, and promoting excellence

Nevada Department of Education
Nevada Ready!

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Acknowledgements

The development of Nevada career and technical education (CTE) standards and assessments is a collaborative effort sponsored by the Nevada Department of Education (NDE) Office of Career Readiness, Adult Learning, and Education Options. The Nevada Department of Education relies on educators and industry representatives who have the technical expertise and teaching experience to develop standards and performance indicators that truly measure student skill attainment. More importantly, the NDE would like to recognize the time and commitment by the writing team members in developing the career and technical standards for Electronic Technology.

Standards Development Members

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Business and Industry Validation

All CTE standards developed through the Nevada Department of Education are validated by business and industry through one or more of the following processes: (1) the standards are developed by a team consisting of business and industry representatives; or (2) a separate review panel is coordinated with industry experts to ensure the standards include the proper content; or (3) nationally recognized standards currently endorsed by business and industry.

The Electronic Technology standards were validated through active participation of business and industry representatives on the development team.

Introduction

The standards in this document are designed to clearly state what the student should know and be able to do upon completion of an advanced high school Electronic Technology program. These standards are designed for a two-credit course sequence that prepares the student for a technical assessment directly aligned to the standards.

These exit-level standards are designed for the student to complete all standards through their completion of a program of study. These standards are intended to guide curriculum objectives for a program of study.

The standards are organized as follows:

- **Content Standards** are general statements that identify major areas of knowledge, understanding, and the skills students are expected to learn in key subject and career areas by the end of the program.

- **Performance Standards** follow each content standard. Performance standards identify the more specific components of each content standard and define the expected abilities of students within each content standard.

- **Performance Indicators** are very specific criteria statements for determining whether a student meets the performance standard. Performance indicators may also be used as learning outcomes, which teachers can identify as they plan their program learning objectives.

The crosswalks and alignment sections of the document show where the performance indicators support the Nevada Academic Content Standards. Where correlation with an academic content standard exists, students in the Electronic Technology program perform learning activities that connect with and support the academic content standards that are listed. The crosswalks and alignments are not intended to teach the academic standards.

All students are encouraged to participate in the career and technical student organization (CTSO) that relates to the Electronic Technology program. CTSOs are co-curricular national organizations that directly reinforce learning in the CTE classroom through curriculum resources, competitive events, and leadership development. CTSOs provide students the ability to apply academic and technical knowledge, develop communication and teamwork skills, and cultivate leadership skills to ensure college and career readiness.

The Employability Skills for Career Readiness identify the "soft skills" needed to be successful in all careers and must be taught as an integrated component of all CTE course sequences. These standards are available in a separate document.

The **Standards Reference Code** is only used to identify or align performance indicators listed in the standards to daily lesson plans, curriculum documents, or national standards. The Standards Reference Code is an abbreviated name for the program, and the content standard, performance standard and performance indicator are referenced in the program standards. This abbreviated code for identifying standards uses each of these items. For example, EL is the Standards Reference Code for Electronic Technology. For Content Standard 2, Performance Standard 3 and Performance Indicator 4 the Standards Reference Code would be EL.2.3.4.

CONTENT STANDARD 1.0: INTEGRATE CAREER AND TECHNICAL STUDENT ORGANIZATIONS (CTSOs)*

Performance Standard 1.1: Explore the History and Organization of CTSOs

1.1.1   Discuss the requirements of CTSO participation/involvement as described in Carl D. Perkins Law

1.1.2   Research nationally recognized CTSOs

1.1.3   Investigate the impact of federal and state government regarding the progression and operation of CTSOs (e.g., Federal Statutes and Regulations, Nevada Administrative Code [NAC], Nevada Revised Statutes [NRS])

Performance Standard 1.2: Develop Leadership Skills

1.2.1   Discuss the purpose of parliamentary procedure

1.2.2   Demonstrate the proper use of parliamentary procedure

1.2.3   Differentiate between an office and a committee

1.2.4   Discuss the importance of participation in local, regional, state, and national conferences, events, and competitions

1.2.5   Participate in local, regional, state, or national conferences, events, or competitions

1.2.6   Describe the importance of a constitution and bylaws to the operation of a CTSO chapter

Performance Standard 1.3: Participate in Community Service

1.3.1   Explore opportunities in community service-related work-based learning (WBL)

1.3.2   Participate in a service learning (program related) and/or community service project or activity

1.3.3   Engage with business and industry partners for community service

Performance Standard 1.4: Develop Professional and Career Skills

1.4.1   Demonstrate college and career readiness (e.g., applications, resumes, interview skills, presentation skills)

1.4.2   Describe the appropriate professional/workplace attire and its importance

1.4.3   Investigate industry-standard credentials/certifications available within this Career Cluster™

1.4.4   Participate in authentic contextualized instructional activities

1.4.5   Demonstrate technical skills in various student organization activities/events

Performance Standard 1.5: Understand the Relevance of Career and Technical Education (CTE)

1.5.1   Make a connection between program standards to career pathway(s)

1.5.2   Explain the importance of participation and completion of a program of study

1.5.3   Promote community awareness of local student organizations associated with CTE programs

*Refer to the program of study Curriculum Framework for appropriate CTSO(s).

CONTENT STANDARD 2.0: IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES

Performance Standard 2.1: Demonstrate General Lab Safety Rules and Procedures
- 2.1.1   Describe general shop safety rules and procedures (i.e., safety test)
- 2.1.2   Describe the roles of Occupational Safety and Health Association (OSHA) and Underwriters Laboratory (UL) in the workplace
- 2.1.3   Comply with the required use of personal protective equipment (PPE) during lab/shop activities
- 2.1.4   Utilize safe procedures for handling of tools and equipment
- 2.1.5   Operate lab equipment according to safety guidelines
- 2.1.6   Identify and use proper lifting procedures and proper use of support equipment
- 2.1.7   Utilize proper ventilation procedures for working within the lab/shop area
- 2.1.8   Identify marked safety areas (e.g., eyewash stations, high voltage areas)
- 2.1.9   Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment and certification dates and inspection frequency
- 2.1.10   Identify the location of the posted evacuation routes
- 2.1.11   Identify appropriate clothing for lab/shop activities
- 2.1.12   Secure hair and jewelry for lab/shop activities
- 2.1.13   Discuss the safety aspects of working with circuits
- 2.1.14   Locate and interpret safety data sheets (SDSs)
- 2.1.15   Prepare reports or records (e.g., technical reports, documentation on measurements, summarization of results, work orders)
- 2.1.16   Perform housekeeping duties (clean and organized work areas, etc.)
- 2.1.17   Follow verbal instructions to complete work assignments
- 2.1.18   Follow written instructions to complete work assignments

Performance Standard 2.2: Identify and Safely Utilize Tools
- 2.2.1   Identify tools and their appropriate usage
- 2.2.2   Demonstrate the proper techniques when using tools
- 2.2.3   Demonstrate safe handling and use of appropriate tools
- 2.2.4   Demonstrate proper cleaning, storage, and maintenance of tools

Performance Standard 2.3: Identify and Safely Utilize Instrumentation
- 2.3.1   Identify test equipment and their appropriate usage
- 2.3.2   Demonstrate the proper techniques when using test equipment
- 2.3.3   Demonstrate safe handling and use of appropriate test equipment
- 2.3.4   Demonstrate proper cleaning, storage, and maintenance of test equipment

CONTENT STANDARD 3.0: IDENTIFY FUNDAMENTAL ELECTRONIC THEORY

Performance Standard 3.1: Explain the Principles of Electronic Theory

3.1.1   Explain the characteristics of voltage, current, and resistance (i.e., unit of measure, letter/symbol)

3.1.2   Define key terms associated with the fundamentals of the theory of electronics

CONTENT STANDARD 4.0: IDENTIFY AND ANALYZE ELECTRICAL COMPONENTS AND QUANTITIES

Performance Standard 4.1: Identify Electronic Components

4.1.1   Identify electronic components

4.1.2   Classify designation letters used to represent electronic components

4.1.3   Illustrate schematic symbols for various types of electrical and electronic components

4.1.4   Recognize the effects of environmental conditions on electronic components

4.1.5   Define key terms associated with electronic components

4.1.6   Explain the main purposes of electronic components

Performance Standard 4.2: Analyze Quantities Utilized in Electronics

4.2.1   Identify and utilize the basic units of electronic measurements

4.2.2   Identify and utilize the resistor color code

4.2.3   Utilize Ohm's law to determine current, voltage, resistance, and power

4.2.4   Define key terms associated with quantities used in electronics (e.g., milliamps, millivolts, mega-ohms, watts, voltage)

4.2.5   Express numbers in scientific notation (i.e., prefixes and symbols)

CONTENT STANDARD 5.0: CONSTRUCT AND ANALYZE FUNDAMENTAL CIRCUIT CONFIGURATIONS

Performance Standard 5.1: Analyze Series Circuit Configuration
- 5.1.1   Identify series circuit configuration
- 5.1.2   Calculate voltage drops in a series circuit
- 5.1.3   Utilize Kirchhoff's Voltage Law
- 5.1.4   Recognize polarity in a series circuit
- 5.1.5   Calculate voltage, current, resistance, and power in a series circuit
- 5.1.6   Construct, measure, and analyze simple series circuit
- 5.1.7   Define key terms associated with series circuits

Performance Standard 5.2: Analyze Parallel Circuit Configuration
- 5.2.1   Identify parallel circuit configuration
- 5.2.2   Calculate voltage drops in a parallel circuit
- 5.2.3   Utilize Kirchhoff's Current Law
- 5.2.4   Recognize polarity in a parallel circuit
- 5.2.5   Calculate voltage, current, resistance, and power in a parallel circuit
- 5.2.6   Construct, measure, and analyze simple parallel circuit
- 5.2.7   Define key terms associated with parallel circuits

Performance Standard 5.3: Analyze Series-Parallel Circuit Configuration
- 5.3.1   Identify series-parallel circuit configuration
- 5.3.2   Calculate voltage drops in a series-parallel circuit
- 5.3.3   Utilize Kirchhoff's Voltage and Current Laws where appropriate
- 5.3.4   Recognize polarity in a series-parallel circuit
- 5.3.5   Calculate voltage, current, resistance, and power in a series-parallel circuit
- 5.3.6   Construct, measure, and analyze a simple series-parallel circuit
- 5.3.7   Demonstrate a series-parallel circuit used as a voltage divider
- 5.3.8   Define key terms associated with series-parallel circuits

CONTENT STANDARD 6.0: APPLY FUNDAMENTAL ANALOG ELECTRONIC PRINCIPLES

Performance Standard 6.1: Analyze Direct Current (DC) Circuits

6.1.1 Interpret electronic schematic diagrams

6.1.2 Construct and test DC circuits

6.1.3 Discuss basic electrical and magnetic properties and their relation to various materials

6.1.4 Demonstrate the proper usage of analog and digital meters

Performance Standard 6.2: Analyze Alternating Current (AC) Circuits

6.2.1 Interpret electronic schematic diagrams

6.2.2 Construct and test AC circuits

6.2.3 Practice the proper usage of test equipment (i.e., analog and digital meters, oscilloscopes, AC voltage sources)

6.2.4 Identify AC wave form characteristics: effective voltage (RMS), average voltage, negative alternation, positive alternation, wavelength, amplitude, and period

6.2.5 Calculate peak, peak-to-peak, RMS, and average voltage values for an AC wave form

6.2.6 Explain cycle, hertz, and phase

6.2.7 Describe the requirement for inductance and capacitance in AC electrical circuits (e.g., inductive, capacitive reactance)

6.2.8 Compare and contrast reactance, resistance, and impedance

6.2.9 Explain phase relationships for series and parallel RL (resistor-inductor), RC (resistor-capacitor), and RCL (resistance-capacitance-inductance) circuits

6.2.10 Research high and low pass filter circuits and AC motors

CONTENT STANDARD 7.0: APPLY FUNDAMENTAL FABRICATION AND SOLDERING TECHNIQUES

Performance Standard 7.1: Apply Fundamental Fabrication Techniques

7.1.1 Investigate current industry standards for fabrication techniques (e.g., connections/connectors, ethernet, RJ45, coax [RJ6, RJ58, RJ59], punch down connectors)

7.1.2 Demonstrate proper setup of fabrication area, equipment, and materials

7.1.3 Construct circuits/projects in the proper sequence

7.1.4 Properly layout circuits/projects from schematic diagrams/prints

7.1.5 Check work for accuracy

7.1.6 Analyze and summarize how manufacturing businesses improve performance

Performance Standard 7.2: Apply Standard Soldering Techniques

7.2.1 Research current industry standards for soldering

7.2.2 Explain solder safety (i.e., burns, fires, lead poisoning, fumes, damages)

7.2.3 Identify types of solder and soldering irons

7.2.4 Demonstrate the proper and safe method for soldering, de-soldering, and cleaning

7.2.5 Demonstrate the ability to solder components to a printed circuit board

7.2.6 Demonstrate the ability to de-solder components from a printed circuit board

7.2.7 Classify flux types and usages

7.2.8 Demonstrate proper usage of heat sinks

7.2.9 Recognize cold solder joints and explain the causes

7.2.10 Produce soldered joints to specifications

7.2.11 Compare and contrast good and bad mechanical and electrical solder connections

7.2.12 Demonstrate proper care of solder and de-solder equipment and aids

7.2.13 Utilize various types of de-soldering equipment and their usages (i.e., de-soldering braid/wick, de-soldering pumps)

7.2.14 Define key terms associated with soldering

CONTENT STANDARD 8.0: APPLY FUNDAMENTAL TROUBLESHOOTING AND MAINTENANCE TECHNIQUES

Performance Standard 8.1: Apply Troubleshooting Techniques

8.1.1   Explain troubleshooting procedures

8.1.2   Select and utilize appropriate tools for electronics troubleshooting

8.1.3   Research various sources of repair/maintenance/troubleshooting documentation (e.g., print media, electronic, tech support, local expert)

8.1.4   Interpret electronic schematic diagrams

8.1.5   Measure electrical characteristics of voltage, current, and resistance in basic electronic circuits using multi-meters, oscilloscopes, logic probes, etc.

8.1.6   Troubleshoot and repair common problems (i.e., faulty components, open circuits, short circuits, environmental conditions)

8.1.7   Define key terms associated with troubleshooting techniques

Performance Standard 8.2: Demonstrate Maintenance and Repair Techniques

8.2.1   Isolate common faults in wiring and components

CONTENT STANDARD 9.0: APPLY FUNDAMENTAL DIGITAL ELECTRONIC PRINCIPLES

Performance Standard 9.1: Analyze Digital Design and Circuitry

9.1.1   Identify and convert numbers between numbering systems (i.e., decimal, binary, hexadecimal, binary coded decimal [BCD])

9.1.2   Compare and contrast between 1 (high) and 0 (low or ground)

9.1.3   Identify and describe basic logic operations (i.e., AND, OR, buffer, inverter, NAND [NOT-AND], NOR [NOT-OR])

9.1.4   Evaluate logic circuit truth tables (e.g., AND, OR, NOR, NAND, buffer, inverter)

9.1.5   Discuss clock and timing circuit operations

9.1.6   Discuss the operation of analog-to-digital and digital-to-analog convertors

9.1.7   Define some key terms associated with digital electronics (e.g., truth tables, logic levels)

CONTENT STANDARD 10.0: APPLY MICROPROCESSOR AND MICROCONTROLLER PRINCIPLES

Performance Standard 10.1: Analyze Control Devices

10.1.1   Describe basic principles of microprocessors/microcontrollers

10.1.2   Describe the process of executing instructions in a microprocessor/microcontrollers

10.1.3   Describe the procedure for instruction coding and program debugging

10.1.4   Demonstrate basic wiring procedures for microprocessors/microcontrollers

10.1.5   Write, deploy, and test a simple original microcontroller program

CONTENT STANDARD 11.0: EXPLORE OPPORTUNITIES IN THE FIELD OF ELECTRONICS

Performance Standard 11.1: Investigate Career and Education Opportunities in Electronics

11.1.1   Investigate career opportunities in the field of electronics

11.1.2   Investigate the advanced educational opportunities in the field of electronics

Crosswalks and Alignments

Crosswalks and alignments are intended to assist the teacher in making connections for students between the technical skills within a program and academic standards. The crosswalks and alignments are not intended to teach the academic standards but to assist students in making meaningful connections between their CTE program of study and academic courses.

Crosswalks (Academic Standards)

The crosswalks of the Electronic Technology Standards show connections with the Nevada Academic Content Standards. The crosswalk identifies the performance indicators in which the learning objectives in the Electronic Technology program support and connect to academic learning. The performance indicators are grouped according to their content standard and are crosswalked to the Nevada Academic Content Standards in English Language Arts, Mathematics, and Science.

Alignments (Mathematical Practices)

In addition to connections with the Nevada Academic Content Standards for Mathematics, many performance indicators support the Mathematical Practices. The following table illustrates the alignment of the Electronic Technology Standards Performance Indicators and the Mathematical Practices. This alignment identifies the performance indicators in which the learning objectives in the Electronic Technology program connect with and support academic learning.

Alignments (Science and Engineering Practices)

In addition to connections with the Nevada Academic Content Standards for Science, many performance indicators support the Science and Engineering Practices. The following table illustrates the alignment of the Electronic Technology Standards Performance Indicators and the Science and Engineering Practices. the performance indicators in which the learning objectives in the Electronic Technology program connect with and support academic learning.

Crosswalks (Common Career Technical Core)

The crosswalks of the Electronic Technology Standards show connections with the Common Career Technical Core. The crosswalk identifies the performance indicators in which the learning objectives in the Electronic Technology program connect with and support the Common Career Technical Core. The Common Career Technical Core defines what students should know and be able to do after completing instruction in a program of study. The Electronic Technology Standards are crosswalked to the Manufacturing Career Cluster™ and the Maintenance, Installation, and Repair Career Pathway.

Crosswalk of Electronic Technology Standards
and the Nevada Academic Content Standards

Content Standard 1.0: Integrate Career and Technical Student Organizations (CTSOs)

Performance Indicators	Nevada Academic Content Standards	
1.1.1	**English Language Arts: Speaking and Listening Standards**	
	SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
	SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
	SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
1.1.2	**English Language Arts: Speaking and Listening Standards**	
	SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
	SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
	SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
1.1.3	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects**	
	WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

Performance Indicators	Nevada Academic Content Standards	
1.2.1	**English Language Arts: Speaking and Listening Standards**	
	SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
	SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
	SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
1.2.4	**English Language Arts: Speaking and Listening Standards**	
	SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
	SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
	SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
1.2.5	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects**	
	WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
1.4.1	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects**	
	WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Performance Indicators	Nevada Academic Content Standards
1.4.2	**English Language Arts: Speaking and Listening Standards**
	SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
	SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
	SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects
	WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
1.4.3	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects**
	WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
1.4.4	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects**
	WHST.11-12.5 Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on addressing what is most significant for a specific purpose and audience.
1.4.5	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects**
	WHST.11-12.6 Use technology, including the Internet, to produce, publish, and update individual or shared writing products in response to ongoing feedback, including new arguments or information.

Performance Indicators	Nevada Academic Content Standards	
1.5.2	**English Language Arts: Language Standards**	
	L.11-12.6	Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression.
	English Language Arts: Speaking and Listening Standards	
	SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
	SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

Content Standard 2.0: Identify Lab Organization and Safety Procedures

Performance Indicators	Nevada Academic Content Standards	
2.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
2.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	English Language Arts: Speaking and Listening Standards	
	SL.11-12.1a	Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well-reasoned exchange of ideas.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
2.1.9	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
2.1.13	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	English Language Arts: Speaking and Listening Standards	
	SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
2.1.14	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.2	Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms.
	RST.11-12.4	Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
	RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
2.1.15	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects**	
	WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Performance Indicators	Nevada Academic Content Standards
2.1.17	**English Language Arts: Speaking and Listening Standards** SL.11-12.1d Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
2.1.18	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Content Standard 3.0: Identify Fundamental Electronic Theory and the History/Future of Electronics

Performance Indicators	Nevada Academic Content Standards
3.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

Content Standard 4.0: Identify and Analyze Electrical Components and Quantities

Performance Indicators	Nevada Academic Content Standards
4.1.2	**English Language Arts: Reading Standards for Informational Text** RI.11-12.7 — Integrate and evaluate multiple sources of information presented in different media or formats (e.g., visually, quantitatively) as well as in words in order to address a question or solve a problem. **English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.4 — Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
4.1.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.4 — Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
4.1.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 — Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 — Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
4.2.3	**Math: Algebra – Creating Equations** ACED.A.4 — Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. **Math: Algebra – Reasoning with Equations and Inequalities** AREI.B.3 — Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **Math: Algebra – Seeing Structure in Expressions** ASSE.A.1 — Interpret expressions that represent a quantity in terms of its context. **Math: Functions – Linear, Quadratic, and Exponential Models** FLE.B.5 — Interpret the parameters in a linear or exponential function in terms of a context.

Content Standard 5.0: Construct and Analyze Fundamental Circuit Configurations

Performance Indicators	Nevada Academic Content Standards
5.1.3	**Math: Algebra – Creating Equations** ACED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. **Math: Algebra – Reasoning with Equations and Inequalities** AREI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **Math: Algebra – Seeing Structure in Expressions** ASSE.A.1 Interpret expressions that represent a quantity in terms of its context. **Math: Functions – Linear, Quadratic, and Exponential Models** FLE.B.5 Interpret the parameters in a linear or exponential function in terms of a context.
5.1.5	**Math: Algebra – Creating Equations** ACED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
5.2.2	**Math: Algebra – Creating Equations** ACED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
5.2.3	**Math: Algebra – Creating Equations** ACED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. **Math: Algebra – Reasoning with Equations and Inequalities** AREI.B.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **Math: Algebra – Seeing Structure in Expressions** ASSE.A.1 Interpret expressions that represent a quantity in terms of its context. **Math: Functions – Linear, Quadratic, and Exponential Models** FLE.B.5 Interpret the parameters in a linear or exponential function in terms of a context.
5.2.5	**Math: Algebra – Creating Equations** ACED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
5.3.2	**Math: Algebra – Creating Equations** ACED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.
5.3.5	**Math: Algebra – Creating Equations** ACED.A.4 Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

Content Standard 6.0: Apply Fundamental Analog Electronic Principles

Performance Indicators	Nevada Academic Content Standards
6.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.4 — Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
6.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 — Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
6.1.3	**English Language Arts: Speaking and Listening Standards** SL.11-12.2 — Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.4 — Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 — Draw evidence from informational texts to support analysis, reflection, and research.
6.2.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.4 — Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
6.2.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 — Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
6.2.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 — Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
6.2.4	**English Language Arts: Speaking and Listening Standards** SL.11-12.2 — Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.4 — Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 — Draw evidence from informational texts to support analysis, reflection, and research.

Performance Indicators	Nevada Academic Content Standards	
6.2.5	**Math: Number & Quantity – Quantities**	
	NQ.A.1	Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
6.2.6	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects**	
	WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
6.2.7	**English Language Arts: Speaking and Listening Standards**	
	SL.11-12.2	Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data.
	SL.11-12.4	Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
6.2.8	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
6.2.9	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
6.2.10	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.

Content Standard 7.0: Apply Fundamental Fabrication and Soldering Techniques

Performance Indicators	Nevada Academic Content Standards	
7.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
7.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	English Language Arts: Speaking and Listening Standards	
	SL.11-12.1d	Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
	SL.11-12.6	Adapt speech to a variety of contexts and tasks, demonstrating a command of formal English when indicated or appropriate. (See grades 11–12 Language standards 1 and 3 on page 54 for specific expectations.)
7.1.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
7.1.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
7.1.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.4	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
7.2.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

Performance Indicators	Nevada Academic Content Standards	
7.2.2	WHST.11-12.8	Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
7.2.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
7.2.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
7.2.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
7.2.8	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
7.2.11	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
	English Language Arts: Writing Standards for Literacy in Science and Technical Subjects	
	WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.
7.2.12	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects**	
	RST.11-12.3	Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Content Standard 8.0: Apply Fundamental Troubleshooting and Maintenance Techniques

Performance Indicators	Nevada Academic Content Standards
8.1.1	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
8.1.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
8.1.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
8.1.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

Content Standard 9.0: Apply Fundamental Digital Electronic Principles

Performance Indicators	Nevada Academic Content Standards
9.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
9.1.7	**English Language Arts: Speaking and Listening Standards** SL.11-12.5 Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Content Standard 11.0: Explore Opportunities in the Field of Electronics

Performance Indicators	Nevada Academic Content Standards	
11.1.1	**English Language Arts: Speaking and Listening Standards**	
	SL.11-12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.
11.1.2	**English Language Arts: Speaking and Listening Standards**	
	SL.11-12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest.

Alignment of Electronic Technology Standards
and the Mathematical Practices

Mathematical Practices	Electronic Technology Performance Indicators
1. Make sense of problems and persevere in solving them.	
2. Reason abstractly and quantitatively.	9.1.1
3. Construct viable arguments and critique the reasoning of others.	
4. Model with mathematics.	4.2.3 5.1.2, 5.1.3, 5.1.5; 5.2.5 6.2.5
5. Use appropriate tools strategically.	6.2.3
6. Attend to precision.	2.1.15 3.1.2 4.2.1; 4.2.4 5.2.3; 5.3.5 8.1.5
7. Look for and make use of structure.	5.1.3
8. Look for and express regularity in repeated reasoning.	5.3.3 9.1.1

Alignment of Electronic Technology Standards
and the Science and Engineering Practices

Science and Engineering Practices	Electronic Technology Performance Indicators
1. Asking questions (for science) and defining problems (for engineering).	3.1.2 4.1.4
2. Developing and using models.	4.1.3 6.2.4
3. Planning and carrying out investigations.	5.2.6 6.1.2; 6.2.3
4. Analyzing and interpreting data.	5.2.6; 5.3.6 6.2.5
5. Using mathematics and computational thinking.	4.2.1, 4.2.3 5.1.2, 5.1.3, 5.1.5; 5.2.2, 5.2.3; 5.3.2, 5.3.3, 5.3.5
6. Constructing explanations (for science) and designing solutions (for engineering).	2.1.15
7. Engaging in argument from evidence.	
8. Obtaining, evaluating, and communicating information.	2.1.15

Crosswalks of Electronic Technology Standards
and the Common Career Technical Core

Manufacturing Career Cluster	Performance Indicators
1. Evaluate the nature and scope of the Manufacturing Career Cluster and the role of manufacturing in society and in the economy.	
2. Analyze and summarize how manufacturing businesses improve performance.	7.1.6
3. Comply with federal, state, and local regulations to ensure worker safety and health and environmental work practices.	2.1.2, 2.1.9, 2.1.14
4. Describe career opportunities and means to achieve those opportunities in each of the Manufacturing Career Pathways.	1.4.3; 1.5.1 11.1.1, 11.1.2
5. Describe government policies and industry standards that apply to manufacturing.	7.2.1
6 Demonstrate workplace knowledge and skills common to manufacturing.	2.1.15; 2.2.2; 2.2.3; 2.3.4, 4.1.6

Maintenance, Installation, and Repair Career Pathway	Performance Indicators
1. Demonstrate maintenance skills and proficient operation of equipment to maximize manufacturing performance.	2.2.4; 2.3.4
2. Demonstrate the safe use of manufacturing equipment to ensure a safe and healthy environment.	4.1.4 6.2.3
3. Diagnose equipment problems and effectively repair manufacturing equipment.	8.1.6
4. Investigate and employ techniques to maximize manufacturing equipment performance.	
5. Implement a preventative maintenance schedule to maintain manufacturing equipment, tools, and workstations.	
6. Implement an effective, predictive, and preventive manufacturing equipment maintenance program.	