# *Welding Technology*
# *Supplemental Program Resources*

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# Supplemental Program Resources 2024

## Introduction

This document provides supplemental information for the Welding Technology program of study. It may be updated or revised as the base program of study, or complementary programs, are updated, added, or removed. Please contact the appropriate Education Programs Professional with any questions.

The Program of Study includes the approved courses, complementary courses, alignment(s) to industry, postsecondary options, and additional information.

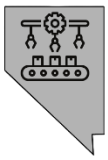
The Equipment List for the Welding Technology program of study is included and, if applicable, additional items used only in the complementary course(s) are noted.

The Crosswalks and Alignments connect and support the Welding Technology standards for the Manufacturing program of study. Complementary course standards are not listed in the crosswalks and alignments.

## Program of Study Information

The following program of study information sheet as well as the program structure tables for the courses are provided to be able to print separately for handouts. The information provided is based on the best available information at the time of this document and will be updated as appropriate.

### Welding Technology



The Welding Technology program provides students with instruction in the industry standard welding practices. Areas of study include print reading, measurement, properties of metals, shielded metal arc welding (SMAW), gas metal arc welding (GMAW), flux cored arc welding (FCAW), gas tungsten arc welding (GTAW), and thermal cutting.

### Manufacturing Career Cluster

Manufacturing® is focused on planning, managing, and performing the processing of materials into intermediate or final products and related professional and technical support activities such as production planning and control, maintenance and manufacturing, and process engineering.

### Postsecondary Options

***Certificate/License***

- Welding Technology (GBC, TMCC)
- Machine Tool Technology (WNC)
- Welding Technology: Entry-Level Welder (CSN)

***Associate Degrees***

- Welding Technology (GBC)
- Manufacturing Technologies (TMCC)
- Technology Welding (WNC)
- Welding Technology: Advanced Level Welder (CSN)

NEVADA Department of Education

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For additional information on this cluster, please contact:
cteinfo@doe.nv.gov

Website: https://doe.nv.gov/offices/craleo/cte

### Required Courses

Welding Technology I
Welding Technology II
Welding Technology II Lab

### Complementary Courses

Welding Technology Advanced Studies
Welding Fabrication
CTE Work Experience – Manufacturing
Industry-Recognized Credential – Welding Technology

### Work-Based Learning Opportunities

Job Shadowing / Internship / CTE Work Experience/ School-based Enterprise/ Apprenticeship Ready Programs

### Career and Technical Student Organization

SkillsUSA SkillsUSA NEVADA TSA NEVADA TSA TECHNOLOGY STUDENT ASSOCIATION

### State Recognized Industry Certifications

Refer to the Governor's Office of Workforce Innovation's Nevada Industry Recognized Credential List

| Aligned to Industry | | | |
|---|---|---|---|
| Occupation | Median Wage Per year | Annual Openings | % Growth |
| Welder, Cutters, Sunderers, and Braziers | $47,010 | 47,600 | 2.0% |
| Quality Control Inspectors | $38,580 | 67,800 | -3.0% |
| Plumbers, Pipefitters, and Steamfitters | $59,880 | 48,600 | 2.0% |
| Ironworkers | $57,160 | 9,400 | 4.0% |
| Sheet Metal Workers | $53,440 | 12,300 | -1.0% |

*Source U.S. Bureau of Labor Statistics 2022*

## Program Structure for Welding Technology

The core course sequencing is provided in the following table. Complementary Courses are available and provided later in this document. The following courses provide a completed program of study. The Lab is a complementary course available concurrently with the Welding Technology II course.

**Core Course Sequence (R) with Lab Course(s) (C)**

| Required/ Complementary | Course Title | Abbreviated Name | CIP Code | SCED Subject Area | SCED Course Identifier | SCED Course Level | SCED Unit Credit | SCED Course Sequence | SCED Course Number |
|---|---|---|---|---|---|---|---|---|---|
| **R** | Welding Technology I | WELDING TECH I | 48.0508 | 13 | 207 | G | 1.00 | 12 | 13207G1.0012 |
| **R** | Welding Technology II | WELDING TECH II | 48.0508 | 13 | 207 | G | 1.00 | 22 | 13207G1.0022 |
| C | Welding Technology II LAB | WELDING TECH II L | 48.0508 | 13 | 207 | E | 1.00 | 22 | 13207E1.0022 |

The complementary courses are provided in the following table. **The qualifying program of study must be completed prior to enrolling in the complementary course(s)**. A program does not have to utilize the complementary courses for students to complete their program of study.

| Required/ Complementary | Course Title | Abbreviated Name | CIP Code | SCED Subject Area | SCED Course Identifier | SCED Course Level | SCED Unit Credit | SCED Course Sequence | SCED Course Number |
|---|---|---|---|---|---|---|---|---|---|
| C | Welding Fabrication | | | | | | | | |
| C | Welding Technology Advanced Studies | WELDING TECH AS | 48.0508 | 13 | 207 | E | 1.00 | 11 | 13207E1.0011 |
| C | Welding Fabrication | WELD FAB | 48.0508 | 13 | 208 | E | 1.00 | 11 | 13208E1.0011 |
| C | Industry Recognized Credential - Welding Technology | IRC WELDING | 48.0508 | 13 | 999 | E | 1.00 | 11 | 13999E1.0011 |
| C | CTE Work Experience - Manufacturing | WORK EXPER MANUF | 99.0013 | 13 | 098 | G | 1.00 | 11 | 13098G1.0011 |

CIP Code – Classification of Instructional Programs (CIP) Codes

SCED – School Courses for the Exchange of Data that populates the State Infinite Campus System and the System for Accountability Information in Nevada (SAIN)

# Course Descriptions

### Welding Technology I

*Prerequisite: None*

This course will introduce the student to the concepts and practices in welding while allowing the more ambitious student to gain occupational training experience necessary to participate in various Welding Certifications. This course is intended to provide students with the basic knowledge, skills, and theory in the characteristics of metals, their structure and properties, and welding technologies. Students will gain an understanding of welding equipment, hand and power tools, safety procedures, print reading, measuring and scaling techniques, machine operation, industrial applications including Shielded Metal Arc Welding (SMAW) and Thermal Cutting processes, and provide them with entry-level skills for employment.

### Welding Technology II

*Prerequisite: Welding Technology I*

This course is a continuation of Welding Technology I. This course provides intermediate welding students the ability to augment and further their skill and knowledge levels. Areas of study will include advanced layout and fabrication methodologies, continuation of shielded metal arc welding (SMAW) and thermal cutting processes, fabrication techniques and Gas Metal Arc Welding (GMAW)welding and GMAW Spray transfer on Carbon Steel, Flux Cored Arc Welding (FCAW) and FCAW spray transfer on carbon steel, and Gas Tungsten Arc Welding (GTAW) on carbon steel. All student activities are designed to enhance students' skill levels toward achievement of various welding certifications. The appropriate use of technology and industry-standard equipment is an integral part of this course.

### Welding Technology II LAB

*Prerequisite: Concurrent enrollment in Welding Technology II*

This course is designed to expand the students' opportunities for applied learning. This course provides an in-depth lab experience that applies the processes, concepts, and principles as described in the classroom instruction. The coursework will encourage students to explore and develop advanced skills in their program area. The appropriate use of technology and industry-standard equipment is an integral part of this course.

### Welding Technology Advanced Studies

*Prerequisite: Completion of Welding Technology Program of Study*

This course is offered to students who have completed all content standards in the Welding Technology program of study and desire to pursue advanced study through investigation and in-depth research. Students are expected to work independently or in a team and consult with their supervising teacher for guidance. The supervising teacher will give directions, monitor, and evaluate the students' topic of study. Coursework may include various work-based learning experiences such as internships and job shadowing, involvement in a school-based enterprise, completion of a capstone project, and/or portfolio development. This course may be repeated for additional instruction and credit.

### Welding Fabrication

*Prerequisite: Completion of Welding Technology Program of Study*

This course is offered to students who have completed all content standards in the Welding Technology program of study. This course provides welding technology students with the ability to further their skills and knowledge levels. Areas of study will include performance qualifications in shielded metal arc welding (SMAW), continuation of fabrication techniques and Gas Metal Arc Welding (GMAW)welding and GMAW Spray transfer on Carbon Steel, Flux Cored Arc Welding (FCAW) and FCAW spray transfer on carbon steel, Gas Tungsten Arc Welding (GTAW) on carbon steel, demonstrate welding inspection and testing principles. All student activities are designed to enhance students' skill levels toward achievement of various welding certifications. The appropriate use of technology and industry-standard equipment is an integral part of this course.

### Industry-Recognized Credential – Welding Technology

*Prerequisite: Completion of Welding Technology Program of Study*

This course is offered to students who have completed all content standards in the Welding Technology program of study and desire to pursue an Industry-Recognized Credential that aligns with the standards and skills associated with the Welding Technology Program of Study. This course is designed to expand the students' opportunities to pursue certification aligned with employment standards in the industry aligned with this program of study. The supervising teacher will provide instruction aligned with the certification requirements, monitor progress toward certification, and provide the students with appropriate testing or certification opportunities associated with the intended Industry-Recognized Credential that is the subject of the course. This course may be repeated for additional instruction and credit.

### CTE Work Experience – Manufacturing

*Prerequisite: Completion of Level 2 course in the qualifying program of study*

This course is designed to expand the students' opportunities for applied learning. This course provides an in-depth CTE work experience that applies the processes, concepts, and principles as described in the classroom instruction. This course will encourage students to explore and develop advanced skills through work-based learning directly related to the program of study. The course must follow NAC 389.562, 389.564, 389.566 regulations.

## Equipment List

This recommended list is based upon a classroom size of 25 students. All costs are estimated and may be adjusted once verified and justified by districts with current quotes. No specific equipment vendor or brand names are endorsed due to various possibilities, but school districts should consult with stakeholders to ensure industry-recognized equipment and software are purchased. The intent of this list is to provide school districts with guidance on the equipment needed to implement the state standards for a Welding Technology program.

**CTE Classroom Equipment** **Total: $1,560**

| QTY | ITEM DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|
| 2 | Storage Cabinets (36” x 12” x 72”) (lockable) | $400 | $800 |
| 1 | Eyewash Station | $300 | $300 |
| 2 | Fire Extinguisher | $130 | $260 |
| 1 | Sink with Soap Dispenser | $100 | $100 |
| 1 | First Aid Kit | $100 | $100 |

**Program Equipment** **Total: $178,500**

| QTY | ITEM DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|
| 25 | Student Computers | $1,000 | $25,000 |
| 1 | Teacher Computer (enhanced memory/storage, download capable | $1,500 | $1,500 |
| 1 | Technology Storage/Charging System (optional) | $2,000 | $2,000 |
| 6 | Welding Simulators w/software | $9,000 | $54,000 |
| 1 | Pedestal Grinder | $6,000 | $6,000 |
| 12 | Welding Stations or Booths | $3,000 | $36,000 |
| 6 | Gas Tungsten Arc Welders (GTAW/TIG) | $1,600 | $9,600 |
| 6 | Cutting Tables | $1,500 | $9,000 |
| 6 | Plasma Cutters | $1,500 | $9,000 |
| 6 | Gas Metal Arc Welders (GMAW/MIG) | $1,200 | $7,200 |
| 12 | Shielded Metal Arc Welders (SMAW) | $1,000 | $12,000 |
| 2 | Metal Stretchers | $800 | $1,600 |
| 1 | Storage Cabinet for Sanitized Eye Protection Equipment | $800 | $800 |
| 6 | Oxy-fuel Welders/Cutting Equipment | $600 | $3,600 |
| 2 | Belt Grinders for Metal | $600 | $1,200 |

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**Instructional Materials** **Total: $3,000**

| QTY | ITEM DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|
| 25 | Student Textbooks Approved CTE Instructional Materials list can be found here. | $100 | $2,500 |
| 1 | Teacher Textbook Edition and Resources | $500 | $500 |

**Instructional Supplies** **Total: $19,350**

| QTY | ITEM DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|
| Varies | Personal Safety Equipment (welding hoods, gloves, ear protection, and aprons) | $5,000 | $5,000 |
| Varies | Welding Materials (electrodes, metal, wire, gas, etc.) | $5,000 | $5,000 |
| Varies | Welding Tools (clamps, slag hammers, electrode tip cleaners, flint strikers, etc.) | $4,000 | $4,000 |
| Varies | Basic Tools (pliers, hammers, screwdrivers, chisels, etc.) | $2,000 | $2,000 |
| Varies | Hand and Power Tools (drills, saws, soapstone, etc.) | $1,500 | $1,500 |
| Varies | Measurement Tools (tape measures, levels, squares, etc.) | $750 | $750 |
| Varies | Lab Safety Supplies (glasses, brooms, garbage cans, etc.) | $500 | $500 |
| Varies | Computer Accessories (cases, Covers, etc.) (optional) | $600 | $600 |

**Other** **Total: $1,275**

| QTY | ITEM DESCRIPTION | UNIT | TOTAL |
|---|---|---|---|
| 1 | Occupational Safety and Health Administration (OSHA) Instructor Training | $300 | $300 |
| 25 | Occupational Safety and Health Administration (OSHA) Student Exams | $39 | $975 |

**Category Totals:**

| | |
|---|---|
| Classroom Equipment | $1,560 |
| Program Equipment | $178,500 |
| Instructional Materials | $3,000 |
| Instructional Supplies | $19,350 |
| Other | $1,275 |
| **Estimated Program Total** | **$203,685** |

## Crosswalks and Alignments for Program of Study Standards

Crosswalks and alignments are intended to assist the teacher make connections for students between the technical skills within the 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. The crosswalks are for the required program of study courses, not the complementary courses.

### Crosswalks (Academic Standards)

The crosswalks of the Welding Technology Standards show connections with the Nevada Academic Content Standards. The crosswalk identifies the performance indicators in which the learning objectives in the Welding Technology program connect with and support 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 Welding Technology Standards Performance Indicators and the Mathematical Practices. This alignment identifies the performance indicators in which the learning objectives in the Welding 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 Welding Technology Standards Performance Indicators and the Science and Engineering Practices. This alignment identifies the performance indicators in which the learning objectives in the Welding Technology program connect with and support academic learning.

### Crosswalks (Common Career Technical Core)

The crosswalks of the Welding Technology Standards show connections with the Common Career Technical Core. The crosswalk identifies the performance indicators in which the learning objectives in the Welding 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 Welding Technology Standards are crosswalked to the Career Cluster™ and the Production Career Pathway.

## Crosswalk of Welding Technology Program of Study Standards and the Nevada Academic Content Standards

### English Language Arts: Language Standards

| Nevada Academic Content Standards | | Performance Indicators |
|---|---|---|
| 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. | 1.5.2 |

### English Language Arts: Reading Standards for Literacy in Science and Technical Subjects

| Nevada Academic Content Standards | | Performance Indicators |
|---|---|---|
| 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. | 2.1.15 |
| 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. | 2.1.1, 2.1.17, 2.1.18, 5.1.2 5.1.3, 6.1.1, 6.1.2, 6.1.3 6.2.3, 6.2.4, 7.3.1, 8.1.2 8.1.3, 8.1.4, 9.1.2, 9.1.3 9.1.4, 10.1.1, 10.1.2, 10.1.3 |
| 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. | 2.1.15, 3.1.2 |
| RST.11-12.5 | Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. | 2.1.15 |
| 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. | 2.1.1, 2.1.2, 2.1.9, 2.1.18 3.1.1, 3.3.1, 3.4.1, 4.1.1 4.1.2, 4.1.3, 4.1.4, 4.2.1 4.2.3, 5.1.1, 6.2.1, 7.1.2 8.1.1, 9.1.1 |

## English Language Arts: Speaking and Listening Standards

| Nevada Academic Content Standards | | Performance Indicators |
|---|---|---|
| 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. | 1.1.1, 1.1.2, 1.2.1, 1.2.4 1.4.2, 2.1.2 |
| 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. | 2.1.17 |
| 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. | 1.1.1, 1.1.2, 1.2.1, 1.2.4 1.4.2, 1.5.2 |
| 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. | 1.1.1, 1.1.2, 1.2.1, 1.2.4 1.4.2, 1.5.2 |

## English Language Arts: Writing Standards for Literacy in Science and Technical Subjects

| Nevada Academic Content Standards | | Performance Indicators |
|---|---|---|
| WHST.11-12.4 | Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. | 1.2.5, 1.4.1, 2.1.1, 2.1.2 2.1.9, 2.1.15, 3.1.1, 3.1.3 3.1.4, 3.4.1, 4.1.1, 4.1.2 4.1.3, 4.1.4, 4.2.1, 4.2.3 5.1.1, 6.2.1, 7.1.2, 8.1.1 9.1.1 |
| 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. | 1.4.4 |
| 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. | 1.4.5 |

| | | |
|---|---|---|
| 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. | 1.1.2, 1.1.3, 1.4.2, 1.4.3 1.5.2 |
| WHST.11-12.9 | Draw evidence from informational texts to support analysis, reflection, and research. | 2.1.15 |

### Math: Geometry – Geometric Measurement and Dimension

| Nevada Academic Content Standards | | Performance Indicators |
|---|---|---|
| GGMD.A.3 | Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. | 3.2.4 |

### Math: Geometry – Modeling with Geometry

| Nevada Academic Content Standards | | Performance Indicators |
|---|---|---|
| GMG.A.3 | Apply geometric methods to solve design problems (e.g., designing an object or structure to satisfy physical constraints or minimize cost; working with typographic grid systems based on ratios). | 3.1.3 |

### Math: Number & Quantity – Qualities

| Nevada Academic Content Standards | | Performance Indicators |
|---|---|---|
| NQ.A.2 | Define appropriate quantities for the purpose of descriptive modeling. | 3.1.3 |

### Science HS: Matter and Its Interactions

| Nevada Academic Content Standards | | Performance Indicators |
|---|---|---|
| HS-PS1-1 | Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. | 4.1.1 |
| HS-PS1-3 | Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrical forces between particles. | 4.1.1 |
| HS-PS1-6 | Refine the design of a chemical system by specifying a change in conditions that would produce increased amounts of products at equilibrium. | 4.1.2, 4.1.4 |

## Alignment of Welding Technology Standards and the Mathematical Practices

| Mathematical Practices | Welding Technology Performance Indicators |
|---|---|
| 1. Make sense of problems and persevere in solving them. | 3.2.4, 3.2.5 |
| 2. Reason abstractly and quantitatively. | 3.2.4, 3.2.5 |
| 3. Construct viable arguments and critique the reasoning of others. | |
| 4. Model with mathematics. | 3.1.3, 3.1.4 |
| 5. Use appropriate tools strategically. | 3.2.4, 3.2.6, 3.3.3 |
| 6. Attend to precision. | 3.1.5, 6.2.5, 7.3.5 |
| 7. Look for and make use of structure. | 7.3.4 |
| 8. Look for and express regularity in repeated reasoning. | |

## Alignment of Welding Technology Standards and the Science and Engineering Practices

| Science and Engineering Practices | Welding Technology Performance Indicators |
|---|---|
| **1.** Asking questions (for science) and defining problems (for engineering). | 3.4.3, 4.1.1, 4.1.4 |
| **2.** Developing and using models. | 3.1.6 |
| **3.** Planning and carrying out investigations. | 7.3.5 |
| **4.** Analyzing and interpreting data. | 3.1.3, 3.1.5 |
| **5.** Using mathematics and computational thinking. | 3.3.4 |
| **6.** Constructing explanations (for science) and designing solutions (for engineering). | 3.4.1 |
| **7.** Engaging in argument from evidence. | |
| **8.** Obtaining, evaluating, and communicating information. | 4.1.3, 4.1.4, 8.1.1 |

## Crosswalks of Welding 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. | |
| 3. Comply with federal, state, and local regulations to ensure worker safety and health and environmental work practices. | 2.1.2, 3.4.2 |
| 4. Describe career opportunities and means to achieve those opportunities in each of the Manufacturing Career Pathways. | |
| 5. Describe government policies and industry standards that apply to manufacturing. | 2.1.2, 3.4.2 |
| 6. Demonstrate workplace knowledge and skills common to manufacturing. | 3.1.1-3.1.5, 7.3.1, 7.3.2 7.3.4, 7.3.5 |

| Production Career Pathway | Performance Indicators |
|---|---|
| 1. Diagnose production process problems and take corrective action to meet production quality standards. | |
| 2. Manage safe and healthy production working conditions and environmental risks. | 2.1.1, 2.1.3-2.1.11 |
| 3. Make continuous improvement recommendations based on results of production process audits and inspections. | |
| 4. Coordinate work teams when producing products to enhance production process and performance. | |
| 5. Demonstrate the safe use of manufacturing equipment. | 3.4.1 |

| Manufacturing Production Process Development Career Pathway | Performance Indicators |
|---|---|
| 1. Produce quality products that meet manufacturing standards and exceed customer satisfaction. | |
| 2. Research, design and implement alternative manufacturing processes to manage production of new and/or improved products. | |
| 3. Monitor, promote, and maintain a safe and productive workplace using techniques and solutions that ensure safe production of products. | |
| 4. Implement continuous improvement processes in order to maintain quality within manufacturing production. | |
| 5. Develop procedures to create products that meet customer needs. | |