Industrial Maintenance
Supplemental Program Resources

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Supplemental Program Resources 2024

Introduction

This document provides supplemental information for the Industrial Maintenance 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.

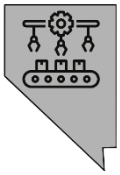
The Equipment List for the Industrial Maintenance program of study is included and, if applicable, additional items used only in the complementary course(s) are noted.

The Crosswalks and Alignments connect and support the Industrial Maintenance 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.

Industrial Maintenance



The Industrial Maintenance program provides students the opportunity to learn the operation and maintenance of various mechanical, electrical, and fluid power systems that occur in various industry settings. Areas of study include safety, tools usage, print reading, fundamental energy principles, power systems, mechanical systems, fluid systems, and basic electrical systems. In additional advanced mechanical systems will be used, fasteners and joining systems will be applied and diagnostics and trouble-shooting techniques will be investigated.

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

- Industrial Maintenance (TMCC)

Associate Degrees

- Engineering Technology: Manufacturing – Industrial and Operations (CSN)
- Industrial Maintenance (GBC)
- Technology – Machine Tool (WNC)
- Technology – General Industrial (WNC)
- Manufacturing Technologies, Production Systems (TMCC)

Bachelor's Degree

- Management and Supervision (GBC)
- Instrumentation (GBC)

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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

Industrial Maintenance I
Industrial Maintenance II
Industrial Maintenance II Lab

Complementary Courses

Industrial Maintenance Advanced Studies
Millwright Processes
CTE Work Experience – Manufacturing
Industry-Recognized Credential – Industrial Maintenance

Work-Based Learning Opportunities

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

Career and Technical Student Organization

SkillsUSA/TSA

SkillsUSA NEVADA

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
Industrial Machinery Mechanics, Machinery Maintenance Workers, and Millwrights	$59,380	53,200	14.0%
Industrial Engineering Technologists and Technicians	$60,220	6,600	3.0%
Electro-Mechanical and Mechatronics Technologists and Technician	$60,360	1,100	-4.0%
Janitors and Building Cleaners	$29,760	335,500	4.0%
General Maintenance and Repair Workers	$41,180	160,100	5.0%
Construction and Building Inspectors	$61,640	14,800	-4.0%

Source U.S. Bureau of Labor Statistics 2022

Program Structure for Industrial Maintenance

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 Industrial Maintenance 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	Industrial Maintenance I	IND MAINT I	47.0303	13	303	G	1.00	12	13303G1.0012
R	Industrial Maintenance II	IND MAINT II	47.0303	13	303	G	1.00	22	13303G1.0022
C	Industrial Maintenance II LAB	IND MAINT II L	47.0303	13	303	E	1.00	22	13303E1.0022

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	Industrial Maintenance Advanced Studies	IND MAINT AS	47.0303	13	303	E	1.00	11	13303E1.0011
C	Millwright Processes	MILL PRIC	47.0303	13	303	E	1.00	11	13303E1.0011
C	Industry Recognized Credential - Industrial Maintenance	IRC IND MAINT	47.0303	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

Industrial Maintenance I

Prerequisite: None

This course introduces students to the operation and maintenance of various mechanical, electrical, and fluid power systems that can be found in various industry settings. Content includes general skills in the use of tools, safety, equipment, materials, and problem solving. Fundamental skills such as the proper use of fasteners, safety practices, precision measuring tools, and electrical test equipment will be mastered.

Industrial Maintenance II

Prerequisite: Industrial Maintenance I

This course is a continuation of Industrial Maintenance I. This course provides intermediate industrial maintenance students opportunities to explore the various forms of power and mechanical systems. Areas of emphasis include advanced mechanical systems, advanced joining systems, diagnostic and troubleshooting procedures, and analog and digital electronic principles. The appropriate use of technology and industry-standard equipment is an integral part of this course.

Industrial Maintenance II LAB

Prerequisite: Concurrent enrollment in Industrial Maintenance 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.

Industrial Maintenance Advanced Studies

Prerequisite: Completion of Industrial Maintenance Program of Study

This course is offered to students who have completed all content standards in the Industrial Maintenance 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.

Millwright Processes

Prerequisite: Completion of Industrial Maintenance Program of Study

This course is offered to students who have completed all content standards in the Industrial Maintenance program of study This course provides industrial maintenance students the ability to further their skills and knowledge levels. Areas of emphasis include power system principles, fastening and joining processes included in manufacturing and basic welding, application of fundamental electronic and instrumentation principles, including control technology and automation principles. The appropriate use of technology and industry-standard equipment is an integral part of this course. Upon successful completion of this course, students will have acquired entry-level skills for employment and be prepared for postsecondary education.

Industry-Recognized Credential – Industrial Maintenance

Prerequisite: Completion of Industrial Maintenance Program of Study

This course is offered to students who have completed all content standards in the Industrial Maintenance program of study and desire to pursue an Industry-Recognized Credential that aligns with the standards and skills associated with the Industrial Maintenance 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.

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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 an Industrial Maintenance 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: $126,300**

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 Station	$2,000	$2,000
1	Motor Control Trainer	$12,000	$12,000
1	Sensor Trainer	$12,000	$12,000
1	Pneumatic and Hydraulic Trainer	$12,000	$12,000
1	Virtual Welder	$10,000	$10,000
1	Computer Numerical Control (CNC) Mill (2’ x 3’)	$7,000	$7,000
1	Welding Simulator with Software	$7,000	$7,000
1	Engine Trainer	$4,500	$4,500
1	Bench Lathe	$4,500	$4,500
1	Programmable Logic Controller (PLC)	$4,000	$4,000
2	Electrical Trainers	$3,200	$6,400
6	Advanced Robotics Kits	$1,500	$9,000
1	Manual Mill	$1,500	$1,500
1	Plasma Cutter	$1,500	$1,500

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QTY	ITEM DESCRIPTION	UNIT	TOTAL
1	Gas Metal Arc Welder (GMAW)	$1,200	$1,200
1	Shielded Metal Arc Welder (SMAW)	$1,000	$1,000
1	Hazardous Material Safety Cabinet (45-gallon capacity)	$1,000	$1,000
1	Storage Cabinet for Sanitized Eye Protection Equipment	$800	$800
1	Air Compressor (with accessories)	$600	$600
3	Oxy-fuel Welders/Cutting Equipment	$600	$1,800

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: $36,325**

QTY	ITEM DESCRIPTION	UNIT	TOTAL
1	Electrical Lockout Station	$445	$445
1	4-Lock Lockout Station	$180	$180
Varies	Automotive tools (brake, engine, transmission, drivetrain repair)	$8,000	$8,000
Varies	Measuring equipment (framing squares, measuring tapes, calipers, micrometers, levels, multimeters, tachometers, etc.)	$5,000	$5,000
Varies	Power Tools (dependent on materials used, including grinders, reciprocating saws, soldering, rotary tolls, grinders, saws, etc.)	$5,000	$5,000
Varies	Hand Tools (socket sets, vises, clamps, hammers, hex keys/Allen wrenches, utility knives, etc.)	$2,500	$2,500
Varies	Welding Tools (clamps, slag hammers, electrode tip cleaners, flint strikers, carts, etc.)	$4,000	$4,000
Varies	Welding Materials (electrodes, metal, wire, gas, etc.)	$5,000	$5,000
Varies	Personal Safety Equipment (safety glasses, work gloves, masks, welding hoods, ear protection, aprons etc.)	$5,000	$5,000
Varies	Supplies (various types of paper, sketching pencils/paints, lead, erasers, ink cartridges. Etc.)	$1,200	$1,200

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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	$126,300
Instructional Materials	$3,000
Instructional Supplies	$36,325
Other	$1,275
Estimated Program Total	**$168,461**

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

Crosswalks (Common Career Technical Core)

The crosswalks of the Industrial Maintenance Standards show connections with the Common Career Technical Core. The crosswalk identifies the performance indicators in which the learning objectives in the Industrial Maintenance 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 Industrial Maintenance Standards are crosswalked to the Manufacturing Career Cluster™ and the Maintenance, Installation, and Repair Career Pathway.

Crosswalk of Industrial Maintenance 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 Informational Text

Nevada Academic Content Standards		Performance Indicators
RI.11-12.3	Analyze a complex set of ideas or sequence of events and explain how specific individuals, ideas, or events interact and develop over the course of the text.	4.1.2, 6.1.2

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.	2.1.16, 5.1.4, 6.1.3
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.	2.1.19, 2.1.20, 3.1.1, 3.1.3 4.3.3, 5.3.8, 5.4.6, 5.5.3 6.2.1, 6.2.2, 7.2.3, 7.2.8 7.3.9, 7.3.10
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.	2.1.16, 3.1.2, 3.3.3, 6.1.3
RST.11-12.5	Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas.	2.1.16, 5.5.4, 6.1.3
RST.11-12.8	Evaluate the hypotheses, data, analysis, and conclusions in a science or technical text, verifying the data when possible and corroborating or challenging conclusions with other sources of information.	3.1.4
RST.11-12.9	Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a	2.1.1, 2.1.2, 2.1.9, 2.1.20 3.1.4, 4.3.3, 5.2.1, 5.3.4

	process, phenomenon, or concept, resolving conflicting information when possible.	5.3.6, 5.5.1, 5.5.4, 5.5.11 7.2.1

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, 1.5.2, 5.3.2, 5.3.6 5.3.7, 5.4.2, 5.5.1, 5.5.11 7.1.1, 7.2.1
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.	2.1.19
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, 5.3.2, 5.3.7, 5.4.2 7.1.1
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, 3.1.4, 5.3.2 5.3.4, 5.3.7, 5.4.2, 7.1.1

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

Nevada Academic Content Standards		Performance Indicators
WHST.11-12.2a	Introduce a topic and organize complex ideas, concepts, and information so that each new element builds on that which precedes it to create a unified whole; include formatting (e.g., headings), graphics (e.g., figures, tables), and multimedia when useful to aiding comprehension.	3.1.3
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, 2.1.17, 3.1.3, 4.1.2 6.1.2
WHST.11-12.5	Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on	1.4.4

	addressing what is most significant for a specific purpose and audience.	
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.11-12.7	Conduct short as well as more sustained research projects to answer a question (including a self-generated question) or solve a problem; narrow or broaden the inquiry when appropriate; synthesize multiple sources on the subject, demonstrating understanding of the subject under investigation.	5.3.6, 5.5.1, 5.5.4, 5.5.11 7.2.1
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, 2.1.16, 3.1.4, 5.1.4 5.2.1, 5.3.4, 7.1.1
WHST.11-12.9	Draw evidence from informational texts to support analysis, reflection, and research.	2.1.16, 6.1.3

Math: Algebra – Seeing Structure in Expressions

Nevada Academic Content Standards		Performance Indicators
ASSE.A.1	Interpret expressions that represent a quantity in terms of its context.	3.2.4, 3.2.5, 4.1.4, 4.1.5 5.2.4
ASSE.A.2	Use the structure of an expression to identify ways to rewrite it.	5.4.4

Math: Number & Quantity – Qualities

Nevada Academic Content Standards		Performance Indicators
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.	3.1.5
NQ.A.2	Define appropriate quantities for the purpose of descriptive modeling.	3.1.5, 3.2.2, 3.2.4, 3.2.5 4.1.4, 4.1.5, 5.2.4
NQ.A.3	Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.	3.2.3, 3.2.6, 4.1.4, 5.2.2 5.2.5

Science HS: Motion and Stability – Forces and Interactions

Nevada Academic Content Standards		Performance Indicators
HS-PS2-1	Analyze data to support the claim that Newton's second law of motion describes the mathematical relationship among the net force on a macroscopic object, its mass, and its acceleration.	5.2.2
HS-PS2-2	Use mathematical representations to support the claim that the total momentum of a system of objects is conserved when there is no net force on the system.	5.2.3, 5.2.4, 5.2.5

Science HS: Energy

Nevada Academic Content Standards		Performance Indicators
HS-PS3-1	Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known.	4.1.4, 4.1.5
HS-PS3-3	Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.	4.3.3

Alignment of Industrial Maintenance Standards and the Mathematical Practices

Common Core Mathematical Practices	Industrial Maintenance Performance Indicators
1. Make sense of problems and persevere in solving them.	3.2.4, 4.1.4, 4.1.5 5.2.3-5.2.5, 5.4.4
2. Reason abstractly and quantitatively.	3.1.3, 3.1.5, 3.2.4, 4.1.4 4.1.5, 5.2.3- 5.2.5, 5.4.4
3. Construct viable arguments and critique the reasoning of others.	4.1.4, 5.3.6, 5.4.4, 5.4.6
4. Model with mathematics.	4.1.4, 5.4.4
5. Use appropriate tools strategically.	3.2.3, 3.2.4, 3.2.6, 4.1.4 5.2.2, 5.2.5, 7.2.9, 7.3.5
6. Attend to precision.	3.2.2-3.2.6, 4.1.5, 5.2.2, 5.2.5 7.3.5
7. Look for and make use of structure.	4.1.4
8. Look for and express regularity in repeated reasoning.	

Alignment of Industrial Maintenance Standards and the Science and Engineering Practices

Science and Engineering Practices	Industrial Maintenance Performance Indicators
1. Asking questions (for science) and defining problems (for engineering).	4.1.4, 4.3.3, 5.3.8
2. Developing and using models.	4.3.3, 5.4.6
3. Planning and carrying out investigations.	5.3.8
4. Analyzing and interpreting data.	4.1.4, 6.1.3
5. Using mathematics and computational thinking.	3.1.3, 3.1.5, 3.2.4, 4.1.4, 4.1.5 5.2.3-5.2.5, 5.4.4
6. Constructing explanations (for science) and designing solutions (for engineering).	
7. Engaging in argument from evidence.	4.1.4
8. Obtaining, evaluating, and communicating information.	4.3.3, 5.1.4, 5.3.2

Crosswalks of Industrial Maintenance 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, 2.1.16
4. Describe career opportunities and means to achieve those opportunities in each of the Manufacturing Career Pathways.	1.4.3
5. Describe career opportunities and means to achieve those opportunities in each of the Manufacturing Career Pathways.	2.1.2
6. Demonstrate workplace knowledge and skills common to manufacturing.	2.1.17

Maintenance, Installation, and Repair Career Pathway	Performance Indicators
1. Demonstrate maintenance skills and proficient operation of equipment to maximize manufacturing performance.	
2. Demonstrate the safe use of manufacturing equipment to ensure a safe and healthy environment.	
3. Diagnose equipment problems and effectively repair manufacturing equipment.	7.2.1-7.2.10
4. Investigate and employ techniques to maximize manufacturing equipment performance.	7.2.6
5. Implement a preventative maintenance schedule to maintain manufacturing equipment, tools, and workstations.	7.2.6
6. Implement an effective, predictive, and preventive manufacturing equipment maintenance program.	7.2.6