

Career and Technical Education

Certificate of Achievement – Industrial Millwright Technology

Student Learning Outcomes

Upon successful completion of the Industrial Millwright Technology Program, the student will have the skills to:

- Read and interpret standard blueprints and drawings of industrial equipment.
- Align shafts using laser and dial indicator methods of alignment.
- Perform troubleshooting and maintenance of fluid handling pumps, industrial gear trains and drives, and material handling systems.
- Rebuild and replace components in liquid and air handling systems.
- Replace bearings and seals in a non-destructive manner.
- Basic electrical theory and safety on single and three phase power equipment.
- Identify failure causes in industrial equipment using vibration analysis and the root cause analysis tree.
- Identify metals according to standard metallurgical tests.
- Fabrication and layout of equipment in industrial settings.
- Perform safely in the work environment, meeting and obeying all workplace safety requirements.

The Industrial Millwright Technology Certificate of Achievement Program is designed for the student who desires a highly technical and challenging field.

Because of the intensity of the program, students will be very close to completion of an AAS degree and are encouraged to pursue the degree.

The Industrial Millwright Technology AAS curriculum is inundated throughout with workplace safety. The program uses multiple industry supplied workplace safety forms provided by members of our advisory board which make the student use critical thinking skills to not only solve problems, but make sure the task is done safely for both the student and the employer.

Formal admission to this program is required. Refer to page 86 for an outline of admission standards. This program is a rigorous 42 week accelerated program, and can be completed in that time.

The Industrial Millwright Technology Program prepares a student for an exciting entry-level career as an Industrial Mechanic in manufacturing, mining, construction, and

the service industry. We use the NCCER curriculum which was developed by industry and is recognized nationally by industry as a training standard. Our program allows students to graduate with a Certificate of Achievement and the opportunity to receive a nationally recognized certification of completed training that they can use to find employment in this field. The student receives technical training in mechanical operations, fluid power, industrial pumps, preventive predictive maintenance, precision shaft alignment, electrical theory, welding processes, and all safety standards for tools and equipment in the work place. Upon successful completion of the program, the student will possess the skills necessary to be able to diagnose and repair mechanical, electrical, liquid, and air handling systems found in most industrial, agricultural, mining, construction, and service industries. A graduate can work in all locations that use machinery to produce a product or service including steel mills, paper mills, mining operations, gravel quarries, universities, schools, textile mills, food processing plants, automotive plants, ship yards, power plants, hospitals, aerospace industry facilities and office building/complexes.

General Education Requirements		Credits
INT 100	GBC Orientation.....	0.5
English/Communications. Determined by placement testing		3
ENG 100, 101, 103, or 107		
Computation — Any course with a MATH prefix		3
Human Relations		1-3
BUS 110 (recommended)		

Program Requirements		Credits
IT 103	Industrial Pump Technology	4
IT 105	Mechanical Power Transmission	4
IT 106	Millwright and Process Terminology	2
IT 201	Blueprint Reading and Measurement Fundamentals.....	5
IT 207	Boiler, Conveyor, and Pneumatic Systems	3
IT 208	Fluid Power	1
IT 209	Rigging Principles.....	2
IT 210	Failure Analysis and Predictive/ Preventative Maintenance	4
IT 214	Basic Electrical Theory for Industrial Technicians.....	3
IT 216	Basic Metallurgy	4
IT 220	Alignment Principles.....	5.5
TA 100	Shop Practices.....	4
WELD 136	Welding for the Maintenance Technician I.....	3
WELD 235	Welding for the Maintenance Technician II	3

Certificate of Achievement Requirements Summary

	Credits
GBC Orientation (select programs)	0.5
English/Communications.....	3
Computation	3
Computation includes the ability to:	
<ul style="list-style-type: none"> • Interpret mathematical models • Represent mathematical information symbolically, visually, numerically, and verbally • Estimate and check answers 	
Must be included as a course or demonstrate how computation components are embedded in other required courses for a Certificate.	
Minimum Certificate Requirements	23
(See program for specific requirements)	
Human Relations	1-3

A minimum of 30 total credits is required. Many programs require more.

Career and Technical Education Admission

Admission standards for the Associate of Applied Science and Certificate of Achievement in the Career and Technical Education (CTE) area for disciplines in Diesel Technology, Electrical Systems Technology, Instrumentation Technology, Industrial Millwright Technology, and Welding Technology are listed below.

Application Deadline: March 1

Prospective students are required to formally apply for admission to the Career and Technical Education (CTE) Department. To do so:

1. The prospective student needs to pick up a CTE Department Admissions Application form from the CTE Department (not from Admissions and Records), fill it out, and return it to the CTE Department by March 1. (Please make sure to declare a major on this form.) The CTE department is located in DCIT 255.
2. Along with the CTE Department Admissions Application form, the student needs to submit to the CTE Department:
 - a. Three letters of recommendation.
 - b. A resumé.
 - c. A letter of intent.
 - d. High school transcripts or HSE scores if applicable, military training records if applicable, and/or higher education records if applicable.

- e. By March 1, the prospective student needs to submit ACT or SAT scores or take the placement tests for mathematics and English at the GBC Academic Success Center in Elko or at any GBC Center.

Admission Criteria

The Career and Technical Education Department will admit a limited number of students to the CTE Department area programs each year. Admission is on a competitive basis. When there are more qualified applicants than there are available spaces in the programs, preference will be given to those with the highest qualifications. Meeting minimum application criteria does not guarantee admission to the program. Those students who meet or exceed the minimum criteria but who are not admitted may reapply in future years. Please check with the program advisor for more information.

Associate of Applied Science Degree

The Associate of Applied Science (AAS) degree is designed for persons who desire education for an occupation or a technical career. The courses and programs of the AAS degree aim to prepare students for entry-level employment. Students also use the career and technical education programs to upgrade themselves in the positions they hold. Many persons enroll in career and technical courses to improve their abilities and understanding of everything from management to welding, from financial planning to computing.

In general, career and technical courses are not meant to satisfy requirements of lower-division baccalaureate programs, but do prepare students for GBC’s Bachelor of Applied Science degree. The career and technical education programs provide a generous component of liberal education coursework which is meant to develop intellectual curiosity and which promotes creative thought. The general education courses are university transfer courses.

Important Note:

Some courses offered at Great Basin College may not be used for an Associate of Arts, Associate of Science, or Bachelor of Arts degree. These courses may not be transferable to other Nevada colleges. These courses are identified in the catalog course descriptions with the following notation:

This course cannot be used for an Associate of Arts (A.A.), Associate of Science (A.S.), a Bachelor of Arts (B.A.) degree, or Bachelor of Science (B.S.), and may not be transferable for other baccalaureate degrees in Nevada.

These courses are identified with a “class attribute” in the online course schedule with the following notation: Non-transferable for an NSHE baccalaureate degree.

Information Item

IT 103 is a course with sections that are taught in both fall and spring semesters. The combination of credits will satisfy the total number required from above, but they will be taught at two different times.

SUGGESTED COURSE SEQUENCE
Certificate of Achievement—
Industrial Millwright Technology

FALL—1st Semester	Credits
ENGLISH*	3
INT 100	0.5
IT 103	1
IT 106	2
IT 201	5
IT 209	2
IT 216	4
TA 100	4
COMPUTATION*	3
WELD 136	3
TOTAL	27.5

SPRING—2nd Semester	Credits
IT 103	3
IT 105	4
IT 207	3
IT 208	1
IT 210	4
IT 214	3
IT 220	5.5
HUMAN RELATIONS*	1-3
WELD 235	3
TOTAL	27.5-29.5

Refer to page 85. Minimum Credits: 55

*Choose with advisor.