

Career and Technical Education

Associate of Applied Science— Industrial Millwright Technology

Student Learning Outcomes

Industrial Millwright Technology is a complex field and demands highly skilled technicians. Graduation from the program prepares students with specialized training in the repairing, maintaining, troubleshooting, reconditioning and rebuilding of industrial equipment. The Associate of Applied Science in Industrial Millwright Technology not only prepares students for employment, it also improves their position for advancement in the future. A graduate with an Associate of Applied Science in Industrial Millwright Technology will be equipped to advance to positions of management throughout industry. GBC’s program includes extensive classroom lecture and laboratory training on state of the art equipment while working with industry to achieve all work place standards. Safety is strongly emphasized in all courses. Upon successful completion of the Industrial Millwright Technology program, the student will have the skills to:

- Think critically to solve workplace problems.
- Communicate clearly and effectively both in writing and orally.
- 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.
- Understand and apply 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.

Formal admission to this program is required, for details see your advisor. 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

Technician in manufacturing, mining, construction, and the service industry. Associate of Applied Science degree allows the graduate the opportunity for faster advancement in the management areas of industry such as planner, scheduler (both short term and long range), supervisors, project leaders, project superintendent, and crew leader.

We use the National Center for Construction and Education Research (NCCER) curriculum which was developed and is recognized nationally by industry as a training standard is the curriculum. Students graduate with an Associate of Applied Science and the opportunity to receive a nationally recognized certification of completed training to find employment in this field.

Technical training is taught 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, and liquid and air handling systems. These are common systems found in most industrial, agricultural, mining, construction, and service industries that use machinery to produce a product or service. Other employment opportunities for graduates of this program can include 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 complexes.

General Education Requirements	Credits
GBC Orientation	0.5
English/Communications	6
Mathematics	3
MATH 116, 120, 126 or higher, or STAT 152	
Science—PHYS 107 (recommended)	3
Social Science—PSC 101	3
Human Relations	
BUS 110 (recommended)	3
Humanities or Fine Arts	3
ART 107 or MUS 125 (recommended)	
Technology—IT 210 (required)	4

List of courses fulfilling general education requirements is on page 81.

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/ Preventive 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

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		
AAS—Industrial Millwright Technology		
FALL—1st Semester		Credits
INT	100	0.5
ENGLISH*		3
IT	103	1
IT	106	2
IT	201	5
IT	209	2
IT	216	4
TA	100	4
MATHEMATICS*		3
HUMANITIES/FINE ARTS*		3
PSC	101	3
WELD	136	3
TOTAL		33.5
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
ENGLISH*		3
SCIENCE*		3
BUS	110	3
WELD	235	3
TOTAL		35.5
Refer to page 81. Minimum Credits: 69		
*Choose with advisor.		

After the AAS in Industrial Millwright Technology, the next step could be the Bachelor of Applied Science in Management and Supervision Emphasis. See page 105.

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.