



# Mechanical Maintenance Training Program

Title	Credits	Course	Course Hours
Fluid Power 1 and 2	2	10-419-103	72
Electrical Safety, Industry	1	10-609-101	18
College Tech Math 1A	3	10-804-308	72
Rigging & Lifting for Manufacturing	CEUs	47-410-413	16
Intro to Pipefitting	CEUs	47-435-401B	16
Blueprint Reading & Fab Tech	CEUs	47-457-402	40
Elements of Machines 1	1	10-620-164	27
Elements of Machines 2	1	10-620-165	27
Machine Shop Basics	CEUs	47-420-448A	30
Related Welding	1	10-442-120	36
	9 Credits		354 Hours

## Estimated per person cost:

- Training: \$4720 per trainee (currently covered by a WFF Grant)
- Books: \$615 per trainee (employers responsible for book cost)

## Education Pathways:

- 9 credits towards multiple manufacturing certificates, diplomas, and degrees. Potential pathways:
  - Industrial Maintenance (TD)
  - Electro-Mechanical Technology (AAS)
  - Automated Manufacturing Systems Technology (AAS)
- Additional 102 hours of highly customized training specific to industry

## Course Descriptions

### Fluid Power 1

Provides an introduction to fundamental principles and laws of fluid power. Laboratory activities are performed to verify the theory.

### Fluid Power 2

Introduces intermediate fluid power systems. Students examine how fluid power components operate and how they interact within fluid power systems. This course will primarily deal with hydraulic systems. Laboratory activities are performed to verify the theory.

## Electrical Safety, Industry

Describes hazards of electrical work and basic approaches to working safely. Students learn skills to recognize, evaluate and control electrical hazards. Includes personal protective equipment and how to perform construction tasks safely. Introduces OSHA mandated Lockout/Tagout procedures and prepares learners for additional safety training.

## College Tech Math 1A

Included topics are solving linear equations; graphing; percent; proportions; measurement systems; computational geometry; and right triangle trigonometry. Emphasis will be on the application of skills to technical problems. Successful completion of College Technical Math 1A and College Technical Math 1B is the equivalent of College Technical Math 1.

## Rigging & Lifting for Manufacturing

Discusses hand rigging (using chains and lever hoists) and power rigging (using cranes and special lifting equipment). The safe use and handling of wire and fiber ropes, chains, slings and rigging hardware are emphasized.

## Intro to Pipefitting

Will provide the student with introductory skills needed in the field of Pipefitting and Tube Bending. Identification of pipes, tubes, and related components, along with installation techniques will be covered.

## Blueprint Reading & Fab Tech

Covers shop safety, lifting techniques, and OSHA regulations. The use and care of basic hand tools, measuring, how to complete a job ticket, and how to read a blueprint will also be covered.

## Elements of Machines 1

Emphasizes the mechanical elements of industrial machines. Principles of leveling motors, fasteners, bearings, and couplings are covered. Terminology, selection, and proper installation and maintenance are stressed.

## Elements of Machines 2

Emphasizes the mechanical elements of industrial machines. Principles of power transmission, belt drives, and chain drives are covered. Terminology, selection, and proper installation and maintenance are stressed.

## Machine Shop Basics

Covers grinding, which includes material identification, speeds and feeds, work piece set-up, coolants & inspection. Milling machining covers the operation & setup of all types of mills. The engine lathe and drill press operation will also be covered.

## Related Welding

Prepares students with the common techniques and procedures for SMAW, GMAW, GTAW, and FCAW welding in a repair or machine shop environment. Topics include welding metal, cutting metal with plasma and oxy-fuel, and metal identification. Laboratory activities will provide the student with hands-on practice.