Apprentices will learn the necessary skills and earn a journeyman’s certification for a CNC Machinist, using the latest tools in this four year, Department of Labor registered technical instruction program.

Core Classes
Industrial Blue Print Reading
Introduction to CAD
Basic Math
Algebra
Machining Theory & Methods
Basic Gauges & Measurement
Materials/Metallurgy
Basic Industrial Electricity
Problem Solving
Intro to Lean Theory
Safety & First Aid
Basic Computer Skills

Track Specific
Intermediate Blueprint Reading/
GD&T
Trigonometry
Precision Machining Methods
Industrial Hydraulics & Pneumatics
Welding II
Jig & Fixture Design
CNC Mill Theory & Programming
CNC Lathe Theory & Programming
EDM Theory

NOTICE OF NONDISCRIMINATORY POLICY AS TO STUDENTS
The Academy for Manufacturing Careers admits students of any race, color, national and ethnic origin, ancestry, religious creed, age, disability, marital status, sexual orientation, gender, or gender expression to all the rights, privileges, programs and activities generally accorded or made available to students at the school. It does not discriminate on the basis of race, color, national and ethnic origin, ancestry, religious creed, age, disability, marital status, sexual orientation, gender, or gender expression in administration of its educational policies, admissions policies, scholarship and loan programs, and any other school-administered programs.
Academy for Manufacturing Careers
CNC Machinist Apprenticeship

Jig & Fixture Design
This course helps the student develop thorough understanding and working knowledge of how and why jigs and fixtures are designed and built as they are. To do this the discussion starts with fundamentals of jigs and fixtures and works through the various elements and considerations of design. Two fundamental tool design principles are constantly stressed: simplicity and economy. Design sketching is used to allow the student to demonstrate an understanding of the theories presented.

Intermediate Blueprint Reading/GD&T
Geometric Dimensioning and Tolerancing covers the fundamentals of GD&T concepts, and teaches how to read and interpret prints with GD&T symbols. Content is based upon ANSI/ASME Y 14.5M-2009 standards.

Trigonometry
This branch of mathematics deals with the triangle and the relationship between its sides and the angles of these sides. Problems that cannot be solved with geometry alone may be solved with trigonometry. The ratio of two sides of a triangle, along with a specific trigonometric function determines its angle. Conversely the angles will determine the ratio of the two sides. Once the angles are known the sides can be computed. It is necessary to analyze problems in order to determine which principles need to be applied.

Precision Machining Methods
A basic course in machining theory and an introduction to the use of common tools and techniques in manufacturing. Topics introduced include: turning, boring, drilling, milling, grinding, use of hand tools, machine setup, preventative maintenance, efficient operation of tools, and use of the Machinery Handbook.

Industrial Hydraulics & Pneumatics
This course provides instruction in the basics of hydraulic and pneumatic systems including pumps, valving, control assemblies, and actuators. A general understanding of basic laws and formulas used in simple hydraulic circuits, including standard hydraulic symbols, and maintenance procedures will be provided.

Welding II
This course provides GMAW (gas metal arc welding formally known as MIG welding) and GTAW (gas tungsten arc welding formally known as TIG welding) processes and techniques. Topics will include: safety, use of equipment, power sources, shielding gases, filler metals, welding techniques, troubleshooting, weld defects and welding in the flat and horizontal positions.

CNC Mill Theory & Programming
This course introduces the students to the theories and basic programming fundamentals of the Computerized Numerical Controlled Mill process.

EDM Theory
This course provides the basic fundamentals and theory of the Electrical Discharge Machining processes.

CNC Lathe Theory & Programming
This course introduces the students to the theories and basic programming fundamentals of the Computerized Numerical Controlled Lathe process.

Machine Maintenance & Troubleshooting
This course covers methods and means used to troubleshoot and maintain machines typically found in a manufacturing environment. Problem symptoms, problem identification, maintenance records and systems will be covered.

CNC Mill Theory & Programming
This course introduces the students to the theories and basic programming fundamentals of the Computerized Numerical Controlled Mill process.

Welding II
This course provides GMAW (gas metal arc welding formally known as MIG welding) and GTAW (gas tungsten arc welding formally known as TIG welding) processes and techniques. Topics will include: safety, use of equipment, power sources, shielding gases, filler metals, welding techniques, troubleshooting, weld defects and welding in the flat and horizontal positions.

Academy for Manufacturing Careers
2545 Spring Arbor Road, Suite 201
Jackson, MI 49203
Phone: 517-782-8268
Fax: 517-435-4126
E-mail: jama@mijama.org

Jackson Area Manufacturers Association
Helping Manufacturers Succeed In G row Since 1937