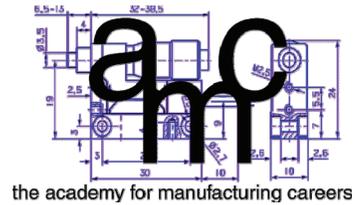


Academy for Manufacturing Careers

Tool & Die Maker Apprenticeship



Apprentices will learn the necessary skills and earn a journeyman's certification for a Tool & Die Maker, using the latest tools in this four year, Department of Labor registered technical instruction program.



Core Classes

Industrial Blue Print Reading

Algebra

Machining Theory & Methods

Basic Gauges & Measurement

Materials/Metallurgy

Basic Industrial Electricity

Problem Solving/Lean

Industry standards, automotive OEM requirements, best practices, and requests for this training by our local manufacturers all continue to show the need for this training.

A variety of classroom instruction formats including lecture, PowerPoint, group discussion, and group exercises gives the student maximum hands-on learning opportunities.

Track Specific

Intermediate Blueprint Reading/GD&T

Trigonometry

Precision Machining Methods

Industrial Hydraulics & Pneumatics

Welding II

Moldmaking

Jig & Fixture Design

Die Theory & Design

CNC Mill Theory & Programming

CNC Lathe Theory & Programming

EDM Theory

Machine Maintenance & Troubleshooting

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.



Jackson Area
Manufacturers Association
Helping Manufacturers Succeed & Grow Since 1937

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

Academy for Manufacturing Careers

Tool & Die Maker 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.

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.

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.

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.

Moldmaking

This course provides the basic fundamentals of mold design and construction.

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.

CNC Mill Theory & Programming

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

Die Theory & Design

This course covers techniques of die design theory and practice. Students will study forming and cutting of dies and their component parts, such as die blocks, strippers, stock guides, shredders, knockouts, nest gages, pushers, die stops, strip layout die sets, stock utilization and engineering formulas. Students will be required to complete a die design project.

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.



Jackson Area
Manufacturers Association
Helping Manufacturers Succeed & Grow Since 1937

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