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Skilled Trades Related Technical Instruction (RTI) Apprenticeship Program

Launched in 2005, the Academy for Manufacturing Careers (AMC) is a Skilled Trades Related Technical Instruction (RTI)/Apprenticeship customized training program designed by manufacturers to meet the needs of manufacturers across south-central Michigan.

This program is sponsored by and delivered through the Jackson Area Manufacturers Association (JAMA) in partnership with Michigan Works Southeast (MWSE).

The Academy for Manufacturing Careers is a State of Michigan Licensed Proprietary School and a U.S. Dept. of Labor Certified Registered Apprenticeship Program.

Date of Publication: October 2018
To register for classes please use the online system. [www.academy4mfgcareers.com](http://www.academy4mfgcareers.com)

If you are having trouble registering for classes please contact our office.

If you are trying to register after the deadline date you will not be able to register online, you will need to contact our office and register using a paper form and a late fee of $50 will be charged.

If Michigan Works! is paying for your classes, you are responsible for making sure that your case worker receives a copy of the email you receive when registering for classes. Please note that Michigan Works! does not pay for late fees, so if you are registering late you will receive an invoice for the $50.

If your company is paying for classes, you are responsible for making sure that your contact receives a copy of the email you receive when registering for classes.

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Checks should be made payable to The Academy for Manufacturing Careers. JAMA Members - will be invoiced for full amount. Non-Member Companies – ½ due at registration with remainder due before start of class. Individuals - $100.00 at registration, ½ of remaining fee before start of class, remainder due at mid-term. *If you are a self-pay student you can get the member rate if balance is paid in full before class starts.* We accept, Visa, Mastercard, Discover and American Express credit cards.

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

**January 2019**

**Registration Opens November 12, 2018**

**Registration Deadline December 7, 2018 @ 4:00pm**

<table>
<thead>
<tr>
<th>Class Name</th>
<th>AMC Placement</th>
<th>Industrial Blueprint Reading Test-Out</th>
<th>Basic Gauges &amp; Measurement Test-Out</th>
<th>Algebra Test-Out</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>Basic Math or AMC Placement</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This assessment is required to make a determination on whether you are placed in Basic Math or Algebra.</td>
<td>Test covers basic blueprint reading skills, overall lengths, bored holes, datums, tolerances, chamfers, and scale of drawing.</td>
<td>You must complete and pass BOTH written and hands-on practical testing.</td>
<td>Test covers algebraic expressions, signed numbers, powers, roots, adding expressions, multiplying expressions, diving expressions, and solving variables.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COURSE ID #</th>
<th>AMC 700</th>
<th>AMC 649</th>
<th>AMC 650</th>
<th>AMC 701</th>
</tr>
</thead>
<tbody>
<tr>
<td>Days</td>
<td>Wednesday</td>
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<td>Wednesday</td>
<td>Wednesday</td>
</tr>
<tr>
<td>Times</td>
<td>5:00pm-8:00pm</td>
<td>5:00pm-8:00pm</td>
<td>5:00pm-8:00pm</td>
<td>5:00pm-8:00pm</td>
</tr>
<tr>
<td>Location</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
</tr>
<tr>
<td>JAMA Rate</td>
<td>$150</td>
<td>$150</td>
<td>$150</td>
<td>$150</td>
</tr>
<tr>
<td>Non-Member</td>
<td>$150</td>
<td>$150</td>
<td>$150</td>
<td>$150</td>
</tr>
</tbody>
</table>

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**Phone:** 517-782-8268  **Fax:** 517-435-4126

**E-mail:** osteele@mijama.org

October 2018
CLASS NAME | Basic Math | Basic Computers | Problem Solving/Lean
---|---|---|---
PRE-REQUISITE | AMC Placement | None | None
DESCRIPTION | Consists of six modules covering the concepts of whole numbers, fractions, decimals, ratios, percent’s, and the basic use of signed numbers, exponents, and order of operations. | This class will provide students with hands-on experience in the basics of computer concepts ranging from Windows 7 to Microsoft Office, Excel, PowerPoint and Outlook. | This training will orient participants to the basics of problem solving methodology and practical data analysis utilizing DMAIC management methods. Discussions and exercises applying problem solving tools are part of this seminar. It will introduce the knowledge and understanding needed to document abnormalities and inefficiencies related to problems confronting your organization. Lean (Understanding Lean Principles & Techniques): The simulation training will help participants understand how lean philosophy and techniques can be applied to maximize customer value, minimize waste, and reduce costs through workplace organization and visual controls, cellular manufacturing and one-piece flow, quality at the source, and pull scheduling.

COURSE ID # | AMC 111 | AMC 160 | AMC 146
DATES | Jan. 10,17,24 Feb. 7,14,21,28 Mar 7 No Class Jan. 31 | Jan. 10,17,24 Feb. 7,14,21,28 Mar 7 No Class Jan. 31 | March 12 8am-4:30pm March 13 9am-1pm
DAYS | Thursdays | Thursdays | Tuesday & Wednesday
TIMES | 6:00pm-10:00pm | 5:00pm-9:00pm | See above
LOCATION | JACC 6800 Browns Lake Rd Jackson, MI 49201 | JACC 6800 Browns Lake Rd Jackson, MI 49201 | Baker College of Jackson Engineering Building 2800 Springport Rd Jackson, MI 49202
JAMA RATE | $625 | $555 | $690
NON-MEMBER | $725 | $655 | $740

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Phone: 517-782-8268 Fax: 517-435-4126
E-mail: osteele@mijama.org
<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Materials &amp; Metallurgy</th>
<th>Intermediate Blueprint Reading/GD&amp;T</th>
<th>Industrial Hydraulics &amp; Pneumatics</th>
<th>Sheet Metal Basics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>Geometric Dimensioning and Tolerancing covers the fundamentals of GD&amp;T concepts, and teaches how to read and interpret prints with GD&amp;T symbols. Content is based upon ANSI/ASME Y 14.5M-2009 standards.</td>
<td>This course provides instruction in the basics of hydraulic and pneumatic systems including pumps, valving, control assemblies, and actuators. Provides a general understanding of basic laws and formulas used in simple hydraulic circuits, including standard hydraulic symbols, and maintenance procedures.</td>
<td>This course covers the basic of sheet metal.</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This course will provide the student with a working knowledge of the properties, uses, and treatment methods used to alter the properties of commonly used metals and alloys. This knowledge may be applied to the design, selection, processing and testing of metal parts.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 135</td>
<td>AMC 200</td>
<td>AMC 220</td>
<td>AMC 233</td>
</tr>
<tr>
<td>DATES</td>
<td>Jan. 7,21,28</td>
<td>Jan. 9,16,23,20</td>
<td>Jan 7,9,16,21,23,28,30</td>
<td>Jan 7,9,16,21,23,28,30</td>
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<tr>
<td></td>
<td>Feb. 4, 11,18,25</td>
<td>Feb. 6,13,20,27</td>
<td>Feb. 4,6,11,13,18,20,25,27</td>
<td>Feb. 4,6,11,13,18,20,25,27</td>
</tr>
<tr>
<td></td>
<td>Mar. 4</td>
<td>Mar. 4</td>
<td>No Class Jan. 14</td>
<td>Mar. 4</td>
</tr>
<tr>
<td></td>
<td>No Class Jan 14th</td>
<td></td>
<td></td>
<td>No Class Jan. 14</td>
</tr>
<tr>
<td>DAYS</td>
<td>Mondays</td>
<td>Wednesdays</td>
<td>Mondays &amp; Wednesdays</td>
<td>Mondays &amp; Wednesdays</td>
</tr>
<tr>
<td>TIMES</td>
<td>5:00pm-9:00pm</td>
<td>5:00pm-9:00pm</td>
<td>5:00pm-9:00pm</td>
<td>5:00pm-9:00pm</td>
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<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
</tr>
<tr>
<td>JAMA RATE</td>
<td>$620</td>
<td>$565</td>
<td>$730</td>
<td>$895</td>
</tr>
<tr>
<td>NON-MEMBER</td>
<td>$720</td>
<td>$665</td>
<td>$830</td>
<td>$995</td>
</tr>
</tbody>
</table>

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October 2018
<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Machine Maintenance &amp; Troubleshooting</th>
<th>Welding II</th>
<th>Trigonometry</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>Basic Industrial Electricity &amp; Industrial Hydraulics &amp; Pneumatics</td>
<td>None</td>
<td>Algebra</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>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.</td>
<td>This is a welding course in 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, vertical and horizontal positions.</td>
<td>Students will learn to express decimal degrees as degrees, minutes and seconds. Complete unknown angles and side of similar triangles. Use geometric principles to solve problems of internally and externally tangent circles.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 260</td>
<td>AMC 230</td>
<td>AMC 208</td>
</tr>
<tr>
<td>DATES</td>
<td>Jan. 8, 10, 15, 17, 22, 24, 29</td>
<td>Jan. 8, 10, 15, 17, 22, 24, 29</td>
<td>Jan. 10, 17, 24</td>
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<tr>
<td></td>
<td>Feb. 5, 7, 12, 14, 19, 26, 28</td>
<td>Feb. 5, 7, 12, 14, 19, 26, 28</td>
<td>Feb. 7, 14, 21, 28</td>
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<tr>
<td></td>
<td>Mar. 5, 7</td>
<td>Mar. 5, 7</td>
<td>Mar 7</td>
</tr>
<tr>
<td></td>
<td>No Class Jan. 31 or Feb. 21</td>
<td>No Class Jan. 31 or Feb. 21</td>
<td>No Class Jan. 31</td>
</tr>
<tr>
<td>DAYS</td>
<td>Tuesdays &amp; Thursdays</td>
<td>Tuesdays &amp; Thursdays</td>
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<tr>
<td>TIMES</td>
<td>5:00pm-8:00pm</td>
<td>5:00pm-9:00pm</td>
<td>5:00pm-9:00pm</td>
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<tr>
<td>LOCATION</td>
<td>JACC</td>
<td>JACC</td>
<td>JACC</td>
</tr>
<tr>
<td></td>
<td>6800 Browns Lake Rd Jackson, MI 49201</td>
<td>6800 Browns Lake Rd Jackson, MI 49201</td>
<td>6800 Browns Lake Rd Jackson, MI 49201</td>
</tr>
<tr>
<td>JAMA RATE</td>
<td>$655</td>
<td>$895</td>
<td>$625</td>
</tr>
<tr>
<td>NON-MEMBER</td>
<td>$755</td>
<td>$995</td>
<td>$725</td>
</tr>
</tbody>
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October 2018
CLASS NAME | CNC Mill Theory & Programming | Basic Gauges & Measurements | Industrial Blueprint Reading | Intro. to CAD
---|---|---|---|---
PRE-REQUISITE | Precision Machining Methods | Industrial Blueprint Reading | None | None
DESCRIPTION | This course introduces the students to the theories and basic programming fundamentals of the Computerized Numerical Controlled Mill process. | Covers use of calipers, micrometers, English and metric gauges and other measuring instruments within a manufacturing environment. Topics include: English vs. metric, calibration of instruments, importance of repeatability, hands-on measurement of piecework, and instrument inspection and care. | This course will provide the student with a working knowledge and understanding of a variety of mechanical blueprints. Students will learn to recognize and identify symbols and specifications common to modern industrial blueprints. Topics will include: lines and symbols, views, form, position, title blocks, sketching, features, and sections. | Introduces students to the use of the computer in the creation of drawings in place of traditional drafting methods. Students will create and edit drawings using the computer and AutoCAD software.

COURSE ID # | AMC 250 | AMC 130 | AMC 100 | AMC 105


DAYS | Wednesdays | Mondays | Tuesdays | Monday & Wednesday

TIMES | 6:00pm-10:00pm | 6:00pm-10:00pm | 5:00pm-9:00pm | 6:00pm-9:00pm

LOCATION | JACC 6800 Browns Lake Rd Jackson, MI 49201 | JACC 6800 Browns Lake Rd Jackson, MI 49201 | JACC 6800 Browns Lake Rd Jackson, MI 49201 | JACC 6800 Browns Lake Rd Jackson, MI 49201

JAMA RATE | $625 | $720 | $655 | $660

NON-MEMBER | $725 | $820 | $665 | $760

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THE ACADEMY FOR MANUFACTURING CAREERS
COMMUNITY FIRST AID AND SAFETY IN COOPERATION WITH
THE AMERICAN HEART ASSOCIATION

Heartsaver® First Aid CPR AED

The AHA's Heartsaver First Aid CPR AED Course is a classroom, Instructor-led course designed to prepare students to provide first aid, CPR, and use an automated external defibrillator (AED) use in a safe, timely, and effective manner.

Upon successful completion of the course, including a first aid skills demonstration and a CPR and AED skills test, students receive a Heartsaver First Aid CPR AED course completion card, valid for two years.

Course Content

- First aid basics
- Medical emergencies
- Injury emergencies
- Environmental emergencies
- Preventing illness and injury
- Adult CPR and AED use
- Opioid–associated life-threatening emergencies
- Optional modules in child CPR and AED use and infant CPR
- Optional Exam

Saturday, February 9, 2019
9:00 am – 2:30 pm
Jackson Area Career Center, 6800 Browns Lake Rd
$100.00 per person

Space is limited, you will be registered on a first come-first serve basis.

To Register:
Complete the attached registration form and return to:
The Academy for Manufacturing Careers
2545 Spring Arbor Road, Suite 201
Jackson, MI 49203

Checks should be made payable to: The Academy for Manufacturing Careers
For more information contact: Olivia Steele 517-782-8268.
or E-mail: osteele@mijama.org
**THE ACADEMY FOR MANUFACTURING CAREERS**  
**MARCH 2019**

**REGISTRATION OPENS DECEMBER 28, 2018**

**REGISTRATION DEADLINE JANUARY 25, 2019 @ 4:00PM**

---

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Geometry Test-Out</th>
<th>Trigonometry Test-Out</th>
<th>Problem Solving</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>Algebra or Algebra Test-Out</td>
<td>Geometry or Geometry Test-Out</td>
<td>None</td>
</tr>
</tbody>
</table>

**DESCRIPTION**
- This test covers angles, complements, supplements, area of shapes, and heights of shapes.
- This test covers finding functions of angles in degrees, minutes and seconds and finding angles in degrees, minutes and seconds given the function.
- This class will introduce participants to the problem solving basics and G8-D reporting methods. It covers the reasons for gathering data when you need to analyze a problem and introduces students to some of the basic tools of problem solving and how these tools are used. Tools covered will include cause & effect (fishbone) diagrams, SPC control charts, 5-why methods, brainstorming and scatter diagrams.

---

<table>
<thead>
<tr>
<th>COURSE ID #</th>
<th>AMC 702</th>
<th>AMC 703</th>
<th>AMC 145</th>
</tr>
</thead>
</table>

**DATES**
- March 6
- March 6
- Students will sign up for ONE of the following sessions:
  - Tuesday, May 21
  - Wednesday, May 22

**DAYS**
- Wednesday
- Wednesday
- Tuesday, May 21
  - OR
  - Wednesday, May 22

**TIMES**
- 5:00pm-8:00pm
- 5:00pm-8:00pm
- May 21 1:00pm-8:00pm
  - OR
  - May 22 8:00am-4:30pm

**LOCATION**
- JACC 6800 Browns Lake Rd  
  Jackson, MI 49201
- JACC 6800 Browns Lake Rd  
  Jackson, MI 49201
- Baker College of Jackson  
  Engineering Building  
  2800 Springport Rd  
  Jackson, MI 49202

**JAMA RATE**
- $150
- $150
- $385

**NON-MEMBER**
- $150
- $150
- $485

---

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2545 Spring Arbor Road, Suite 201, Jackson, MI 49203  
**Phone:** 517-782-8268  
**Fax:** 517-435-4126  
**E-mail:** osteele@mijama.org

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October 2018
THE ACADEMY FOR MANUFACTURING CAREERS
MARCH 2019
REGISTRATION OPENS DECEMBER 28, 2018
REGISTRATION DEADLINE JANUARY 25, 2019 @ 4:00PM

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Basic Industrial Electricity</th>
<th>Jig and Fixture Design</th>
<th>Industrial Hydraulics &amp; Pneumatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>Industrial Blueprint Reading</td>
<td>Precision Machining Methods</td>
<td>Industrial Blueprint Reading</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This class is designed to give a basic understanding of safely working with and around electricity in an industrial environment. The course topics include: electrical theory, power and control circuits, DC and AC, batteries inductance, capacitance, transformers, measuring of circuits, lighting, machines, single and three phase motors, control circuits and components, and maintenance procedures.</td>
<td>This course helps the student develop a 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 the 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.</td>
<td>This course provides instruction in the basics of hydraulic and pneumatic systems including pumps, valving, control assemblies, and actuators. Provides a general understanding of basic laws and formulas used in simple hydraulic circuits, including standard hydraulic symbols, and maintenance procedures.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 140</td>
<td>AMC 240</td>
<td>AMC 220</td>
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<td>DATES</td>
<td>Mar. 18, 25</td>
<td>Mar. 19,21,26,28</td>
<td>Mar. 18,20,25,27</td>
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<td></td>
<td>Apr. 8,15,22,29</td>
<td>Apr. 9,11,16,18,23,25,30</td>
<td>Apr. 8,10,15,17,22,24,29</td>
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<tr>
<td></td>
<td>May 6,13</td>
<td>May 2,7,9,14,16</td>
<td>May 1,6,8,13,15</td>
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<td></td>
<td>No class Apr. 1-4 Spring Break</td>
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<td>Mondays</td>
<td>Tuesdays &amp; Thursdays</td>
<td>Mondays &amp; Wednesdays</td>
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<td>TIMES</td>
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<td>5:00pm-8:00pm</td>
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<tr>
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<td></td>
<td>Jackson, MI 49201</td>
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<td>$655</td>
<td>$730</td>
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<tr>
<td>NON-MEMBER</td>
<td>$770</td>
<td>$755</td>
<td>$830</td>
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### CLASS NAME

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>PRE-REQUISITE</th>
<th>DESCRIPTION</th>
<th>COURSE ID #</th>
<th>DATES</th>
<th>DAYS</th>
<th>TIMES</th>
<th>LOCATION</th>
<th>JAMA RATE</th>
<th>NON-MEMBER</th>
</tr>
</thead>
</table>
| Welding I  | None          | The Welding I course is beginning theory with an introduction to safety in welding. It should include instruction on the safe operation and hands-on applications of oxyacetylene welding, cutting, brazing, and shield metal arc welding. The welding defects associated with oxyacetylene welding, torch brazing, cutting, shielded metal arc welding, filler metal selection of electrodes. The filler metal designation system, weld ability of metals and defects associated with SMAW, plasma cutting and air carbon arc gouging. | AMC 225 | Mar. 19,21,26,28 | Tuesdays & Thursdays | 5:00pm-9:00pm | JACC  
6800 Browns Lake Rd  
Jackson, MI 49201 | $895 | $995 |
| EDM        | None          | This course will present the fundamentals of Electrical Discharge Machining. Concepts will include electrode selection for vertical EDM, flushing & orbiting operations. The class will cover differences between CNC and manual operations; describe dielectric oil and the process for discharge dressing electrodes. Students will learn wire EDM operations, wire types, selection process and wire flushing. Students will discuss the effects of water quality, carbide and the EDM process. The course will also include preventative maintenance procedures. | AMC 255 | Mar. 18,20,25,27 | Mondays & Wednesdays | 5:00pm-8:00pm | JACC  
6800 Browns Lake Rd  
Jackson, MI 49201 | $655 | $755 |
| Machine Maintenance & Troubleshooting | Basic Industrial Electricity & Industrial Hydraulics & Pneumatics | 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. | AMC 260 | Mar. 19,21,26,28 | Tuesdays & Thursdays | 5:00pm-8:00pm | JACC  
6800 Browns Lake Rd  
Jackson, MI 49201 | $655 | $755 |

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October 2018
## The Academy for Manufacturing Careers

**March 2019**

**Registration Opens December 28, 2018**

**Registration Deadline January 25, 2019 @ 4:00pm**

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Basic Industrial PLC</th>
<th>Algebra</th>
<th>CNC Lathe Theory &amp; Programming</th>
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</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>Basic Math</td>
<td>Precision Machining Methods</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This course is intended for individuals new to PLC programming. It is an overview of SLC and Micrologix hardware, communications, cabling, and system design. It introduces the student to RSLogix 500 and its features for ladder programming. The course also has instructor led labs that cover a variety of programming instructions used with SLC 500 and RSLogix 500 software, including examine on/off, output energize, latch and unlatch, timers, counters, math statements, comparisons, branching, etc.Students will work with handbook formulas as well as computations required for practical application. Students will develop the ability to evaluate expressions and to express word statements as an algebraic problem. This course introduces the students to the theories and basic programming fundamentals of the Computerized Numerical Controlled Lathe process.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 265</td>
<td>AMC 113</td>
<td>AMC 251</td>
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<tr>
<td>DATES</td>
<td>Mar. 20,27</td>
<td>Apr. 1,11,18,25</td>
<td>Mar. 19,26</td>
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<td>Apr. 10,17,24</td>
<td>May 2,9,16</td>
<td>Apr. 9,16,23,30</td>
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<td>May 1,8,15</td>
<td>No class Apr. 1-4 Spring Break</td>
<td>May 7,14</td>
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<td>No class Apr. 1-4 Spring Break</td>
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<td>Thursdays</td>
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<tr>
<td>NON-MEMBER</td>
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<td>$725</td>
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October 2018
The Academy for Manufacturing Careers

May 2019

Registration Opens April 8, 2019
Registration Deadline May 3, 2019 @ 4:00PM

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Industrial Blueprint Reading</th>
<th>Materials &amp; Metallurgy</th>
<th>Intro. to CAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This course will provide the student with a working knowledge and understanding of a variety of mechanical blueprints. Students will learn to recognize and identify symbols and specifications common to modern industrial blueprints. Topics will include: lines and symbols, views, form, position, title blocks, sketching, features, and sections.</td>
<td>This course will provide the student with a working knowledge of the properties, uses, and treatment methods used to alter the properties of commonly used metals and alloys. This knowledge may be applied to the design, selection, processing and testing of metal parts.</td>
<td>Introduces students to the use of the computer in the creation of drawings in place of traditional drafting methods. Students will create and edit drawings using the computer and AutoCAD software.</td>
</tr>
</tbody>
</table>

| COURSE ID #         | AMC 100                     | AMC 135                | AMC 105       |
| DATES               | June 3,10,17,24, July 1,8,15,22, No Class May 27 | May 29, June 5,12,19,26, July 3,10,17 | May 29, June 3,5,10,12,17,19,24,26, July 1,3,8,10,15,17,22, No Class May 27 |
| DAYS                | Mondays                     | Wednesdays             | Mondays & Wednesdays |
| TIMES               | 6:00pm-10:00pm              | 6:00pm-10:00pm         | 6:00pm-9:00pm |
| LOCATION            | JACC 6800 Browns Lake Rd Jackson, MI 49201 | JACC 6800 Browns Lake Rd Jackson, MI 49201 | JACC 6800 Browns Lake Rd Jackson, MI 49201 |
| JAMA RATE           | $565                        | $620                   | $660          |
| NON-MEMBER RATE     | $665                        | $720                   | $760          |

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<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Basic Industrial Electricity</th>
<th>Industrial Wiring</th>
<th>Moldmaking</th>
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<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>Industrial Blueprint Reading</td>
<td>Basic Industrial Electricity</td>
<td>Machining Theory &amp; Methods</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This class is designed to give a basic understanding of safely working with and around electricity in an industrial environment. The course topics include: electrical theory, power and control circuits, DC and AC, batteries inductance, capacitance, transformers, measuring of circuits, lighting, machines, single and three phase motors, control circuits and components, and maintenance procedures.</td>
<td>This class will cover practical applications of Industrial Electrical Wiring. The course will start with codes, standards, and electrical prints. The course will then move on to the safe use of hand tools and power tools used in the industry. Also, materials used in the industrial environment and how to determine correct wire size and voltage levels will be determined. Finally the installation of equipment and repairs will be explored.</td>
<td>This course will present the fundamentals of mold design and construction. Students will learn to identify properties of plastics &amp; metals, aluminum &amp; zinc die casting molds and differentiate mold types. Students will understand heating and cooling, use and location of runners &amp; gates, cores, cavities &amp; inserts. Students will learn process for mold base preparation, how to determine mold life, factors affecting it and the reasons and procedures for mold polishing.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 140</td>
<td>AMC 270</td>
<td>AMC 235</td>
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<td>DATES</td>
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<td>June 4,11,18,25</td>
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<td>July 2,9,16</td>
<td>July 11,18,25</td>
<td>July 1,3,8,10,15,17,22</td>
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<tr>
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October 2018
# The Academy for Manufacturing Careers

**May 2019**

**Registration Opens April 8, 2019**

**Registration Deadline May 3, 2019 @ 4:00PM**

<table>
<thead>
<tr>
<th>Class Name</th>
<th>Intermediate Blueprint Reading/GD&amp;T</th>
<th>Precision Machining Methods</th>
<th>Basic Math</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Requisite</strong></td>
<td>Industrial Blueprint Reading &amp; Basic Math</td>
<td>Machining Theory &amp; Methods</td>
<td>AMC Placement</td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>Geometric Dimensioning and Tolerancing covers the fundamentals of GD&amp;T concepts, and teaches how to read and interpret prints with GD&amp;T symbols. Content is based upon ANSI/ASME Y 14.5M-2009 standards.</td>
<td>The basics of precision machining operations utilizing a variety of machine tools and related equipment. Topics include: operation and use of drill presses, lathes, power saws, grinders, vertical and horizontal milling machines, and other basic machine tools; bench work (hand and power hack saws, deburring, shearing, filing, polishing, use of hand taps, and cutting threads with a die); safety; and good housekeeping.</td>
<td>Consists of six modules covering the concepts of whole numbers, fractions, decimals, ratios, percent’s, and the basic use of signed numbers, exponents, and order of operations.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course ID #</th>
<th>AMC 200</th>
<th>AMC 218</th>
<th>AMC 111</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dates</strong></td>
<td>May 28</td>
<td>May 30</td>
<td>May 29</td>
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<td>June 5, 12, 19, 26</td>
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<tr>
<td></td>
<td>July 2, 9, 16</td>
<td>July 11, 18, 25</td>
<td>July 3, 10, 17</td>
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<tr>
<td><strong>Days</strong></td>
<td>Tuesdays</td>
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<tr>
<td><strong>JAMA Rate</strong></td>
<td>$565</td>
<td>$625</td>
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<td><strong>Non-Member</strong></td>
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### The Academy for Manufacturing Careers
#### May 2019
**Registration Opens April 8, 2019**
**Registration Deadline May 3, 2019 @ 4:00PM**

<table>
<thead>
<tr>
<th>Class Name</th>
<th>Machine Maintenance &amp; Troubleshooting</th>
<th>Welding III</th>
<th>Problem Solving/Lean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pre-Requisite</strong></td>
<td>Basic Industrial Electricity &amp;</td>
<td>Welding II</td>
<td>None</td>
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<tr>
<td></td>
<td>Industrial Hydraulics &amp; Pneumatics</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Description</strong></td>
<td>This course covers methods and</td>
<td>Covers theory</td>
<td>This training will</td>
</tr>
<tr>
<td></td>
<td>means used to troubleshoot and</td>
<td>fundamental</td>
<td>orient participants</td>
</tr>
<tr>
<td></td>
<td>maintain machines typically found in</td>
<td>application</td>
<td>to the basics of</td>
</tr>
<tr>
<td></td>
<td>a manufacturing environment.</td>
<td>of welding as</td>
<td>problem solving</td>
</tr>
<tr>
<td></td>
<td>Problem symptoms, problem</td>
<td>required in</td>
<td>methodology and</td>
</tr>
<tr>
<td></td>
<td>identification, maintenance</td>
<td>the fabrication</td>
<td>practical data</td>
</tr>
<tr>
<td></td>
<td>records and systems will be</td>
<td>of aluminum and</td>
<td>analysis utilizing</td>
</tr>
<tr>
<td></td>
<td>covered.</td>
<td>stainless steel</td>
<td>DMAIC management</td>
</tr>
<tr>
<td><strong>Course ID #</strong></td>
<td>AMC 260</td>
<td>AMC 231</td>
<td>AMC 146</td>
</tr>
<tr>
<td><strong>Dates</strong></td>
<td>May 29, June 3,5,10,12,17,19,24,26</td>
<td>May 28, 30</td>
<td>August 6 8am-4:30pm</td>
</tr>
<tr>
<td></td>
<td>July 1,3,8,10,15,17,22</td>
<td>June 4,6,11,13,18,20,25,27</td>
<td>August 7 9am-1pm</td>
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<tr>
<td></td>
<td>No Class May 27</td>
<td>July 2,9,11,16,18,23</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Class July 4</td>
<td></td>
</tr>
<tr>
<td><strong>Days</strong></td>
<td>Mondays &amp; Wednesdays</td>
<td>Tuesdays &amp; Thursdays</td>
<td>Tuesday &amp; Wednesday</td>
</tr>
<tr>
<td><strong>Times</strong></td>
<td>5:00pm-8:00pm</td>
<td>5:00pm-9:00pm</td>
<td>See above</td>
</tr>
<tr>
<td><strong>Location</strong></td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
<td>Baker College of Jackson Engineering Building 2800 Springport Rd Jackson, MI 49202</td>
</tr>
<tr>
<td><strong>JAMA Rate</strong></td>
<td>$655</td>
<td>$895</td>
<td>$690</td>
</tr>
<tr>
<td><strong>Non-Member</strong></td>
<td>$755</td>
<td>$995</td>
<td>$740</td>
</tr>
</tbody>
</table>

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**Mail:** The Academy for Manufacturing Careers  
2545 Spring Arbor Road, Suite 201, Jackson, MI 49203  
**Phone:** 517-782-8268  **Fax:** 517-435-4126  
**E-mail:** osteele@mijama.org
**CLASS NAME** | **AMC Placement** | **Industrial Blueprint Reading Test-Out** | **Basic Gauges & Measurement Test-Out** | **Algebra Test-Out**
---|---|---|---|---
**PRE-REQUISITE** | None | None | None | Basic Math or AMC Placement

**DESCRIPTION**
- This assessment is required to make a determination on whether you are placed in Basic Math or Algebra.
- Test covers basic blueprint reading skills, overall lengths, bored holes, datums, tolerances, chamfers, and scale of drawing.
- You must complete and pass BOTH written and hands-on practical testing.
- Test covers the proper naming, use, and calibration of measuring instruments found within a manufacturing environment. Instruments covered include but are not limited to calipers, micrometers, sine bars, and gauges in both inch and metric units.
- Test covers algebraic expressions, signed numbers, powers, roots, adding expressions, multiplying expressions, diving expressions, and solving variables.

**COURSE ID #** | **DATES** | **DAYS** | **TIMES** | **LOCATION** | **JAMA RATE** | **NON-MEMBER**
---|---|---|---|---|---|---
AMC 700 | Aug. 13 | Tuesday | 5:00pm-8:00pm | JACC 6800 Browns Lake Rd Jackson, MI 49201 | $150 | $150
AMC 649 | Aug. 13 | Tuesday | 5:00pm-8:00pm | JACC 6800 Browns Lake Rd Jackson, MI 49201 | $150 | $150
AMC 650 | Aug. 13 | Tuesday | 5:00pm-8:00pm | JACC 6800 Browns Lake Rd Jackson, MI 49201 | $150 | $150
AMC 701 | Aug. 13 | Tuesday | 5:00pm-8:00pm | JACC 6800 Browns Lake Rd Jackson, MI 49201 | $150 | $150

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October 2018
### CLASS NAME
- **Electrical Troubleshooting**
- **Machining Theory & Methods**
- **Industrial Hydraulics & Pneumatics**

### PRE-REQUISITE
- **Basic Industrial Electricity**
- **Basic Gauges & Measurement**
- **Industrial Blueprint Reading**

### DESCRIPTION
- **Electrical Troubleshooting**: This course explores troubleshooting in various areas such as: control circuits, combinations starters, control devices, special controls, DC motors, lightening systems with use of schematics, building drawings and with emphasis on cutting troubleshooting time.
- **Machining Theory & 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, and efficient operation of tools.
- **Industrial Hydraulics & Pneumatics**: This course provides instruction in the basics of hydraulic and pneumatic systems including pumps, valving, control assemblies, and actuators. Provides a general understanding of basic laws and formulas used in simple hydraulic circuits, including standard hydraulic symbols, and maintenance procedures.

### COURSE ID #
- **AMC 285**
- **AMC 120**
- **AMC 220**

### DATES
- **Aug. 20, 27**  
  **Sept. 3, 10, 17, 24**  
  **Oct. 1, 8**
- **Aug. 19, 21, 26, 28**  
  **Sept. 4, 9, 11, 16, 23, 25, 30**  
  **Oct. 2, 7, 9, 14**
- **Aug. 19, 21, 26, 28**  
  **Sept. 4, 9, 11, 16, 18, 23, 25, 30**  
  **Oct. 2, 7, 9, 14**

### DAYS
- **Tuesdays**
- **Mondays & Wednesdays**
- **Mondays & Wednesdays**

### TIMES
- **5:00pm-9:00pm**
- **6:00pm-10:00pm**
- **5:00pm-9:00pm**

### LOCATION
- **JACC**  
  **6800 Browns Lake Rd**  
  **Jackson, MI 49201**

### JAMA RATE
- **$625**
- **$785**
- **$730**

### NON-MEMBER
- **$725**
- **$885**
- **$830**

---

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---

October 2018
The Academy for Manufacturing Careers
August 2019
Registration Opens July 1, 2019
Registration Deadline August 2, 2019 @ 4:00PM

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Welding II</th>
<th>Algebra</th>
<th>Machine Maintenance &amp; Troubleshooting</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>Basic Math</td>
<td>Basic Industrial Electricity &amp; Industrial Hydraulics &amp; Pneumatics</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This is a welding course in 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, vertical and horizontal positions.</td>
<td>Students will work with handbook formulas as well as computations required for practical application. Students will develop the ability to evaluate expressions and to express word statements as an algebraic problem.</td>
<td>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.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 230</td>
<td>AMC 113</td>
<td>AMC 260</td>
</tr>
<tr>
<td>DATES</td>
<td>Aug. 20,22,27,29</td>
<td>Aug. 22,29</td>
<td>Aug. 20,22,27,29</td>
</tr>
<tr>
<td></td>
<td>Sept. 3,5,10,12,17,19,24,26</td>
<td>Sept. 5,12,19,26</td>
<td>Sept. 3,5,10,12,17,19,24,26</td>
</tr>
<tr>
<td></td>
<td>Oct. 1,3,8,10</td>
<td>Oct. 3,10</td>
<td>Oct. 1,3,8,10</td>
</tr>
<tr>
<td>DAYS</td>
<td>Tuesdays &amp; Thursdays</td>
<td>Thursdays</td>
<td>Tuesdays &amp; Thursdays</td>
</tr>
<tr>
<td>TIMES</td>
<td>5:00pm-9:00pm</td>
<td>6:00pm-10:00pm</td>
<td>5:00pm-8:30pm</td>
</tr>
<tr>
<td>LOCATION</td>
<td>JACC 6800 Browns Lake Road</td>
<td>JACC 6800 Browns Lake Rd</td>
<td>JACC 6800 Browns Lake Rd</td>
</tr>
<tr>
<td></td>
<td>Jackson, MI 49201</td>
<td>Jackson, MI 49201</td>
<td>Jackson, MI 49201</td>
</tr>
<tr>
<td>JAMA RATE</td>
<td>$895</td>
<td>$625</td>
<td>$655</td>
</tr>
<tr>
<td>NON-MEMBER</td>
<td>$995</td>
<td>$725</td>
<td>$755</td>
</tr>
</tbody>
</table>

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October 2018
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October 2018
The Academy for Manufacturing Careers
AUGUST 2019
REGISTRATION OPENS JULY 1, 2019
REGISTRATION DEADLINE AUGUST 2, 2019 @ 4:00PM

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E-mail: osteele@mijama.org

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>CNC Mill Theory &amp; Programming</th>
<th>Robotics &amp; Material Handling</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>Precision Machining Methods</td>
<td>None</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This course introduces the</td>
<td>An increasing number of</td>
</tr>
<tr>
<td></td>
<td>students to the theories</td>
<td>companies are turning</td>
</tr>
<tr>
<td></td>
<td>and basic programming</td>
<td>to robotics as a means for</td>
</tr>
<tr>
<td></td>
<td>fundamentals of the</td>
<td>increased production.</td>
</tr>
<tr>
<td></td>
<td>Computerized Numerical</td>
<td>Robots have an impressive</td>
</tr>
<tr>
<td></td>
<td>Controlled Mill process.</td>
<td>range of applications, from</td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;pick and place&quot; for</td>
</tr>
<tr>
<td></td>
<td></td>
<td>packaging, to welding,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>painting, or inspecting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>parts immediately after a</td>
</tr>
<tr>
<td></td>
<td></td>
<td>process. However, robots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>are not foolproof; they</td>
</tr>
<tr>
<td></td>
<td></td>
<td>require effective</td>
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<tr>
<td></td>
<td></td>
<td>preventive maintenance to</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ensure they operate at</td>
</tr>
<tr>
<td></td>
<td></td>
<td>full capacity. If a robot</td>
</tr>
<tr>
<td></td>
<td></td>
<td>malfunctions, an</td>
</tr>
<tr>
<td></td>
<td></td>
<td>experienced maintenance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>professional must</td>
</tr>
<tr>
<td></td>
<td></td>
<td>know how to troubleshoot</td>
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<tr>
<td></td>
<td></td>
<td>the exact cause. These</td>
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<tr>
<td></td>
<td></td>
<td>robotics classes cover the</td>
</tr>
<tr>
<td></td>
<td></td>
<td>major components of</td>
</tr>
<tr>
<td></td>
<td></td>
<td>industrial robots, the</td>
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<tr>
<td></td>
<td></td>
<td>common applications for</td>
</tr>
<tr>
<td></td>
<td></td>
<td>robots, and axis movement.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Later classes address</td>
</tr>
<tr>
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<td>vision systems, effective</td>
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<td></td>
<td></td>
<td>preventive maintenance for</td>
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<tr>
<td></td>
<td></td>
<td>robots, as well as</td>
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<tr>
<td></td>
<td></td>
<td>common causes of robot</td>
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<tr>
<td></td>
<td></td>
<td>failure along with the</td>
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<tr>
<td></td>
<td></td>
<td>ways to identify those</td>
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<tr>
<td>COURSE ID #</td>
<td>AMC 250</td>
<td>AMC 280</td>
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<tr>
<td>DATES</td>
<td>Aug. 20,27</td>
<td>Aug. 19,21,26,28</td>
</tr>
<tr>
<td></td>
<td>Sept. 3,10,17,24</td>
<td>Sept. 4,9,11,16,18,23,25,30</td>
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<tr>
<td></td>
<td>Oct. 1,8</td>
<td>Oct. 2,7,9,14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Class Sept 2</td>
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<tr>
<td>DAYS</td>
<td>Tuesdays</td>
<td>Mondays &amp; Wednesdays</td>
</tr>
<tr>
<td>TIMES</td>
<td>6:00pm-10:00pm</td>
<td>6:00pm-9:00pm</td>
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<tr>
<td>LOCATION</td>
<td>JACC</td>
<td>JACC</td>
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<tr>
<td></td>
<td>6800 Browns Lake Rd</td>
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<td>Jackson, MI 49201</td>
<td>Jackson, MI 49201</td>
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<tr>
<td>JAMA RATE</td>
<td>$625</td>
<td>$745</td>
</tr>
<tr>
<td>NON-MEMBER</td>
<td>$725</td>
<td>$845</td>
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October 2018
The Academy for Manufacturing Careers

AUGUST 2019

REGISTRATION OPENS JULY 1, 2019

REGISTRATION DEADLINE AUGUST 2, 2019 @ 4:00PM

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Problem Solving</th>
<th>Industrial Blueprint Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This class will introduce participants to the problem solving basics and G8-D reporting methods. It covers the reasons for gathering data when you need to analyze a problem and introduces students to some of the basic tools of problem solving and how these tools are used. Tools covered will include cause &amp; effect (fishbone) diagrams, SPC control charts, 5-why methods, brainstorming and scatter diagrams.</td>
<td>This course will provide the student with a working knowledge and understanding of a variety of mechanical blueprints. Students will learn to recognize and identify symbols and specifications common to modern industrial blueprints. Topics will include: lines and symbols, views, form, position, title blocks, sketching, features, and sections.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 145</td>
<td>AMC 100</td>
</tr>
<tr>
<td>DATES</td>
<td>Students will sign up for ONE of the following sessions:</td>
<td>Aug. 19,26&lt;br&gt;Sept. 9,16,23,30&lt;br&gt;Oct. 7,14</td>
</tr>
<tr>
<td>DAYS</td>
<td>Tuesday, October 15&lt;br&gt;OR&lt;br&gt;Wednesday, October 16</td>
<td>Mondays</td>
</tr>
<tr>
<td>TIMES</td>
<td>Oct. 15 1:00pm-8:00pm&lt;br&gt;OR&lt;br&gt;Oct. 16 8:00am-4:30pm</td>
<td>5:00pm-9:00pm</td>
</tr>
<tr>
<td>LOCATION</td>
<td>Baker College of Jackson Engineering Building&lt;br&gt;2800 Springport Rd&lt;br&gt;Jackson, MI 49202</td>
<td>JACC&lt;br&gt;6800 Browns Lake Rd&lt;br&gt;Jackson, MI 49201</td>
</tr>
<tr>
<td>JAMA RATE</td>
<td>$385</td>
<td>$565</td>
</tr>
<tr>
<td>NON-MEMBER</td>
<td>$485</td>
<td>$665</td>
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The AHA's Heartsaver First Aid CPR AED Course is a classroom, Instructor-led course designed to prepare students to provide first aid, CPR, and use an automated external defibrillator (AED) use in a safe, timely, and effective manner.

Upon successful completion of the course, including a first aid skills demonstration and a CPR and AED skills test, students receive a Heartsaver First Aid CPR AED course completion card, valid for two years.

Course Content

- First aid basics
- Medical emergencies
- Injury emergencies
- Environmental emergencies
- Preventing illness and injury
- Adult CPR and AED use
- Opioid–associated life-threatening emergencies
- Optional modules in child CPR and AED use and infant CPR
- Optional Exam

Saturday, September 14, 2019
9:00 am – 2:30 pm
Jackson Area Career Center, 6800 Browns Lake Rd
$100.00 per person

Space is limited, you will be registered on a first come-first serve basis.

To Register:
Complete the attached registration form and return to:
The Academy for Manufacturing Careers
2545 Spring Arbor Road, Suite 201
Jackson, MI 49203

Checks should be made payable to: The Academy for Manufacturing Careers
For more information contact: Olivia Steele 517-782-8268.
or E-mail: o Steele@mijama.org
<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Basic Industrial Electricity</th>
<th>Precision Machining Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>Industrial Blueprint Reading</td>
<td>Machining Theory &amp; Methods</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This class is designed to give a basic understanding of safely working with and around electricity in an industrial environment. The course topics include: electrical theory, power and control circuits, DC and AC, batteries, inductance, capacitance, transformers, measuring of circuits, lighting, machines, single and three phase motors, control circuits and components, and maintenance procedures.</td>
<td>The basics of precision machining operations utilizing a variety of machine tools and related equipment. Topics include: operation and use of drill presses, lathes, power saws, grinders, vertical and horizontal milling machines, and other basic machine tools; bench work (hand and power hack saws, deburring, shearing, filing, polishing, use of hand taps, and cutting threads with a die); safety; and good housekeeping.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 140</td>
<td>AMC 218</td>
</tr>
<tr>
<td>DATES</td>
<td>Oct. 28, Nov. 4, 11, 18, 25, Dec. 2, 9, 16</td>
<td>Oct. 29, Nov. 5, 12, 19, 26, Dec. 3, 10, 17</td>
</tr>
<tr>
<td>DAYS</td>
<td>Mondays</td>
<td>Tuesdays</td>
</tr>
<tr>
<td>TIMES</td>
<td>5:00pm-9:00pm</td>
<td>6:00pm-10:00pm</td>
</tr>
<tr>
<td>LOCATION</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
</tr>
<tr>
<td>JAMA RATE</td>
<td>$670</td>
<td>$625</td>
</tr>
<tr>
<td>NON-MEMBER</td>
<td>$770</td>
<td>$725</td>
</tr>
</tbody>
</table>

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Mail: The Academy for Manufacturing Careers
2545 Spring Arbor Road, Suite 201, Jackson, MI 49203
Phone: 517-782-8268 Fax: 517-435-4126
E-mail: oestrele@mijama.org
### THE ACADEMY FOR MANUFACTURING CAREERS

**OCTOBER 2019**

**REGISTRATION OPENS SEPTEMBER 9, 2019**

**REGISTRATION DEADLINE OCTOBER 4, 2019 @ 4:00PM**

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Jig and Fixture Design</th>
<th>CNC Lathe Theory &amp; Programming</th>
<th>Industrial Blueprint Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>Precision Machining Methods</td>
<td>Precision Machining Methods</td>
<td>None</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This course helps the student develop a 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 the 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.</td>
<td>This course introduces the students to the theories and basic programming fundamentals of the Computerized Numerical Controlled Lathe process.</td>
<td>This course will provide the student with a working knowledge and understanding of a variety of mechanical blueprints. Students will learn to recognize and identify symbols and specifications common to modern industrial blueprints. Topics will include: lines and symbols, views, form, position, title blocks, sketching, features, and sections.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 240</td>
<td>AMC 251</td>
<td>AMC 100</td>
</tr>
<tr>
<td></td>
<td>Nov. 5, 7, 12, 14, 19, 21, 26</td>
<td>Nov. 7, 14, 21</td>
<td>Nov. 6, 13, 20, 27</td>
</tr>
<tr>
<td></td>
<td>Dec. 3, 5, 10, 12, 17, 19</td>
<td>Dec. 5, 12, 19</td>
<td>Dec. 4, 11, 18</td>
</tr>
<tr>
<td></td>
<td>No Class Nov. 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAYS</td>
<td>Tuesdays &amp; Thursdays</td>
<td>Thursdays</td>
<td>Wednesdays</td>
</tr>
<tr>
<td>TIMES</td>
<td>5:00pm-8:00pm</td>
<td>6:00pm-10:00pm</td>
<td>5:00pm-9:00pm</td>
</tr>
<tr>
<td>LOCATION</td>
<td>JACC</td>
<td>JACC</td>
<td>JACC</td>
</tr>
<tr>
<td></td>
<td>6800 Browns Lake Rd</td>
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</tr>
<tr>
<td></td>
<td>Jackson, MI 49201</td>
<td>Jackson, MI 49201</td>
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<td>JAMA RATE</td>
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<td>$625</td>
<td>$565</td>
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<tr>
<td>NON-MEMBER</td>
<td>$755</td>
<td>$725</td>
<td>$665</td>
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2545 Spring Arbor Road, Suite 201, Jackson, MI 49203
Phone: 517-782-8268 Fax: 517-435-4126
E-mail: osteele@mijama.org

October 2018
# The Academy for Manufacturing Careers

**October 2019**

**Registration Opens September 9, 2019**

**Registration Deadline October 4, 2019 @ 4:00PM**

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>EDM</th>
<th>Welding I</th>
<th>Materials &amp; Metallurgy</th>
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<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>None</td>
<td>None</td>
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<tr>
<td>DESCRIPTION</td>
<td>This course will present the fundamentals of Electrical Discharge Machining. Concepts will include electrode selection for vertical EDM, flushing &amp; orbiting operations. The class will cover differences between CNC and manual operations; describe dielectric oil and the process for discharge dressing electrodes. Students will learn wire EDM operations, wire types, selection process and wire flushing. Students will discuss the effects of water quality, carbide and the EDM process. The course will also include preventative maintenance procedures.</td>
<td>The Welding I course is beginning theory with an introduction to safety in welding. It should include instruction on the safe operation and hands-on applications of oxyacetylene welding, cutting, brazing, and shield metal arc welding. The welding defects associated with oxyacetylene welding, torch brazing, cutting, shielded metal arc welding, filler metal selection of electrodes. The filler metal designation system, weld ability of metals and defects associated with SMAW, plasma cutting and air carbon arc gouging.</td>
<td>This course will provide the student with a working knowledge of the properties, uses, and treatment methods used to alter the properties of commonly used metals and alloys. This knowledge may be applied to the design, selection, processing and testing of metal parts.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 255</td>
<td>AMC 225</td>
<td>AMC 135</td>
</tr>
<tr>
<td>DATES</td>
<td>Oct. 28,30</td>
<td>Oct. 24,29,31</td>
<td>Oct. 29</td>
</tr>
<tr>
<td></td>
<td>Nov. 4,6,11,13,18,20,25,27</td>
<td>Nov. 5,7,12,14,19,21,26</td>
<td>Nov. 5,12,19,26</td>
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<tr>
<td></td>
<td>Dec. 2,4,9,11,16,18</td>
<td>Dec. 3,5,10,12,17,19</td>
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<tr>
<td>DAYS</td>
<td>Mondays &amp; Wednesdays</td>
<td>Tuesdays &amp; Thursdays</td>
<td>Tuesdays</td>
</tr>
<tr>
<td>TIMES</td>
<td>6:00pm-9:00pm</td>
<td>5:00pm-9:00pm</td>
<td>5:00pm-9:00pm</td>
</tr>
<tr>
<td>LOCATION</td>
<td>JACC 6800 Browns Lake Rd Jackson, MI 49201</td>
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<tr>
<td>JAMA RATE</td>
<td>$655</td>
<td>$895</td>
<td>$620</td>
</tr>
<tr>
<td>NON-MEMBER</td>
<td>$755</td>
<td>$995</td>
<td>$720</td>
</tr>
</tbody>
</table>

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2545 Spring Arbor Road, Suite 201, Jackson, MI 49203
**Phone:** 517-782-8268  **Fax:** 517-435-4126
**E-mail:** osteenl@mjama.org

October 2018
THE ACADEMY FOR MANUFACTURING CAREERS
OCTOBER 2019
REGISTRATION OPENS SEPTEMBER 9, 2019
REGISTRATION DEADLINE OCTOBER 4, 2019 @ 4:00PM

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Drive Components &amp; Bearings</th>
<th>Geometry</th>
<th>Work Life Skills</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>Algebra</td>
<td>None</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This course instructs students in the principles, applications, and maintenance of various types of bearings and mechanical couplings, including ball and roller, powdered metal, non-metallic, hydrostatic bearings, couplings, such as shear, torque limiting, floating and insulated, speed reducers, seals and gears.</td>
<td>Review of arithmetic and algebra. Introductory geometry including: axioms, theorems, propositions, dealing with straight lines, triangles, polygons and circles.</td>
<td>This course will examine the role of communication in achieving organizational goals. Emphasis will be placed on business relationships, managerial styles and group interaction as components of organizational problem solving. Students will develop an ability to assess, select, compose and evaluate messages exchanged within organizations, both oral and written.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 275</td>
<td>AMC207</td>
<td>AMC 165</td>
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<tr>
<td>DATES</td>
<td>Oct. 24, 31</td>
<td>Oct. 30</td>
<td>Oct. 29</td>
</tr>
<tr>
<td></td>
<td>Nov. 7, 14, 21</td>
<td>Nov. 6, 13, 20, 27</td>
<td>Nov. 5, 12, 19, 26</td>
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<td>Dec. 5, 12, 19</td>
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<td>Dec. 3, 10, 17</td>
</tr>
<tr>
<td></td>
<td>No Class Nov. 28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DAYS</td>
<td>Thursdays</td>
<td>Wednesdays</td>
<td>Tuesdays</td>
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<td>TIMES</td>
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<td>5:00pm-9:00pm</td>
<td>6:00pm-10:00pm</td>
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<td>Jackson, MI 49201</td>
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<tr>
<td>JAMA RATE</td>
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<tr>
<td>NON-MEMBER</td>
<td>$725</td>
<td>$725</td>
<td>$700</td>
</tr>
</tbody>
</table>

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E-mail: osteele@mijama.org

October 2018
Adult Learning Services @ LISD TECH Center continues to expand its offerings to meet the demands of our two primary customers: the residents and the employers of Lenawee County. For those of you looking to expand your horizons by starting a new hobby or pursuing a long-held passion, we have a wide variety of enrichment courses. Whether it's in the kitchen, relaxing with a knitting project, learning a new language, or creating a scrapbook, you will find it here.

For employers who rely on highly-skilled employees for their success, and employees eager to advance their careers, we are again expanding our training options. The LISD has expanded its menu of skilled trades courses in partnership with the Jackson Area Manufacturers Association’s Academy for Manufacturing Careers. Customized training is also available upon request.

Please remember, we are here to serve you. If you have a suggestion for a course that you think would be a good fit for the Adult Learning Services Program, please let us know.

CONTACT INFO:
Phone: 517-265-1650
Website: www.al.lisd.us
#### Registration Information

**The Academy for Manufacturing Careers**  
**January 2019**  
**Registration Opens November 12, 2018**  
**Registration Deadline December 7, 2018 @ 4:00PM**

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Industrial Blueprint Reading</th>
<th>Machining Theory &amp; Methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>None</td>
<td>Basic Gauges &amp; Measurement</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>This course will provide the student with a working knowledge and understanding of a variety of mechanical blueprints. Students will learn to recognize and identify symbols and specifications common to modern industrial blueprints. Topics will include: lines and symbols, views, form, position, title blocks, sketching, features, and sections.</td>
<td>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, and efficient operation of tools.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 100</td>
<td>AMC 120</td>
</tr>
</tbody>
</table>
| DATES | Jan. 9, 16, 23, 20  
Feb. 6, 13, 20, 27 | Jan. 8, 10, 15, 17, 22, 24, 29  
Feb. 5, 7, 12, 14, 19, 26, 28  
Mar. 5, 7  
No Class Jan. 31 or Feb. 21 |
| DAYS | Wednesdays | Tuesdays & Thursdays |
| TIMES | 5:00pm-9:00pm | 5:00pm-9:30pm |
| LOCATION | LISD TECH Center  
1372 N. Main Street  
Adrian, MI | LISD TECH Center  
1372 N. Main Street  
Adrian, MI |
| JAMA RATE | $565 | $785 |
| NON-MEMBER | $665 | $885 |

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Phone: 517-782-8268 Fax: 517-435-4126
E-mail: osteel@mijama.org
The Academy for Manufacturing Careers
August 2019
Registration opens July 1, 2019
Registration Deadline August 2, 2019 @ 4:00PM

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<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Basic Math</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>AMC Placement</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Consists of six modules covering the concepts of whole numbers, fractions, decimals, ratios, percent’s, and the basic use of signed numbers, exponents, and order of operations.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 111</td>
</tr>
</tbody>
</table>
| DATES            | Aug. 19,26  
                  | Sept. 9,16,23,30  
                  | Oct. 7,14 |
| DAYS             | Mondays |
| TIMES            | 5:00pm-9:00pm |
| LOCATION         | LISD TECH Center  
                  | 1372 N. Main Street  
                  | Adrian, MI |
| JAMA RATE        | $625 |
| NON-MEMBER       | $725 |
### The Academy for Manufacturing Careers

**October 2019**

**Registration Opens September 9, 2019**

**Registration Deadline October 4, 2019 @ 4:00PM**

<table>
<thead>
<tr>
<th>CLASS NAME</th>
<th>Algebra</th>
<th>Industrial Hydraulics &amp; Pneumatics</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRE-REQUISITE</td>
<td>Basic Math</td>
<td>Industrial Blueprint Reading</td>
</tr>
<tr>
<td>DESCRIPTION</td>
<td>Students will work with handbook formulas as well as computations required for practical application. Students will develop the ability to evaluate expressions and to express word statements as an algebraic problem.</td>
<td>This course provides instruction in the basics of hydraulic and pneumatic systems including pumps, valving, control assemblies, and actuators. Provides a general understanding of basic laws and formulas used in simple hydraulic circuits, including standard hydraulic symbols, and maintenance procedures.</td>
</tr>
<tr>
<td>COURSE ID #</td>
<td>AMC 113</td>
<td>AMC 220</td>
</tr>
<tr>
<td>DATES</td>
<td>Oct. 28</td>
<td>Oct. 24, 29, 31</td>
</tr>
<tr>
<td></td>
<td>Nov. 4,11,18,25</td>
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<tr>
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<td>Mondays</td>
<td>Tuesday &amp; Thursdays</td>
</tr>
<tr>
<td>TIMES</td>
<td>5:00pm-9:00pm</td>
<td>5:00pm-9:00pm</td>
</tr>
<tr>
<td>LOCATION</td>
<td>LISD TECH Center 1372 N. Main Street Adrian, MI</td>
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<tr>
<td>JAMA RATE</td>
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<tr>
<td>NON-MEMBER</td>
<td>$725</td>
<td>$830</td>
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</table>

Drop Policy: You will receive a 100% refund for any class you drop on or before the last day of the registration period for the term. If you DROP after the last day of the registration period you will be responsible for 50% of the class fees. A student should not simply stop attending a class; they need to notify The Academy immediately. Failure to notify the Academy may result in you receiving a 0 or F for the class and the student will also still be responsible for full payment of the class.

Checks should be made payable to The Academy for Manufacturing Careers. JAMA Members - will be invoiced for full amount. Non-Member Companies – ½ due at registration with remainder due before start of class. Individuals - $100.00 at registration, ½ of remaining fee before start of class, remainder due at mid-term. **If you are a self-pay student you can get the member rate if balance is paid in full before class starts.** We accept, Visa, Mastercard, Discover and American Express credit cards.

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

Who we are,

Manufacturing is vitally important to Michigan, and small and medium-size companies are the backbone of manufacturing, the engine that drives our economy.

At the Michigan Manufacturing Technology Center, our mission is to provide the guidance, tools and support that will enable our manufacturers to compete, thrive and prosper in an ever-changing business world.

For decades we have given manufacturers the resources necessary to promote operational excellence and foster creative strategies for business growth.

Today, we’re driving innovation and best practices to address an increasingly complex global economy through our consulting services that include lean manufacturing, technology implementation, cybersecurity, market research, sustainability and leadership training, Industry 4.0 and more.

Our experts don’t just make recommendations; they are on the shop floor, working side-by-side with staff and management.

We train. We analyze. We solve. We advocate.

Michigan manufacturing is what drives us. It’s why we exist. To make manufacturers better, to show them how to grow, adapt, and add jobs here.

Our team delivers by lowering costs, reducing waste, increasing efficiencies and accelerating technology, so our clients can Manufacture Smarter.

Companies turn to The Center both in times of need and when seeking to become a more efficient and profitable operation. It’s the small and medium-sized manufacturers such as these that are creating jobs and, in many ways, sustaining local economies. They are passionate about their businesses, and we are passionate about their success.

In fact, over the past year, our work with more than 400 companies resulted in 12,000 jobs created or retained, 225 million dollars in investments made, 215 million dollars in new sales, and 1.7 BILLION dollars in retained sales.

We are Experienced. We are Thorough. We are Mission-oriented. We work tirelessly to find the right resources and the right solutions for every situation, every time. We are the go-to experts for advancing our state’s manufacturing. We are the Michigan Manufacturing Technology Center.

CONTACT INFO:
Phone: 888.414.6682
Website: the-center.org
Do you have an employee with leadership potential or a newly promoted supervisor/foreman and want to give him or her practical management training? This is the class. Each class section will contain key aspects of effective leadership, equipping participants with the knowledge and skills to thrive in today’s manufacturing management environment.

This interactive Supervisory Skills course will equip attendees with the knowledge and skills needed to become effective leaders and supervisors. Participants will be acquainted with the skills and tools necessary to relate to subordinates, peers and managers. Topics covered include:

- Behavior characteristics
- Effective time management
- Leading people through change
- On-the-job training
- Effective communication
- Building better teams
- Handling conflict
- Motivation
- Making meetings work
- Employee discipline

CLASS DETAILS:
**Date & Time:** January 15, 17, 22 & 24, 2019 | 8:00am-4:30pm | Charlie Westra

**Location:** Baker College of Jackson, Engineering Building
2800 Springport Road | Jackson, MI 49202

**Training Costs:** $925 members / $975 non-members

**REGISTER TODAY:**
Deadline December 7, 2018 at 4pm
Register at [www.academy4mfgcareers.com](http://www.academy4mfgcareers.com)
INTRODUCTION TO DESIGN OF EXPERIMENTS

The most effective Design of Experiment (DOE) that a person can run is the one they don’t have to. Many DOEs result in a lack of findings or improvements, and even some of those that are effective are inefficient because they are focusing on too many potential root causes (factors). In this training course we focus on attempting to ascertain whether a DOE is truly necessary, and how to make one as efficient and effective as possible.

CLASS OBJECTIVES:
Topics covered include:
- Effective Measurement Systems: Making sure the data used for decision-making is valid
- Good Data Collection: Ensuring that the data is complete and reflective of the process being studied
- Key Process Input Variable “Farming”: Using Hypothesis Testing to eliminate the need for a DOE or to reduce complexity and produce better results
- Basic DOE: Once a DOE is determined as necessary, how to plan, conduct and analyze a DOE for root cause and improvement

CLASS DETAILS:
Date & Time: March 5 & 6, 2019   |   8:00am-4:30pm   |   Chuck Werner
Location: Baker College of Jackson, Engineering Building
          2800 Springport Road   |   Jackson, MI 49202
Training Costs: $795 members / $895 non-members

REGISTER TODAY:
Registration deadline February 1, 2019 at 4pm
Please register at www.academy4mfgcareers.com
MiniTab Training focuses on the fundamentals of MiniTab execution and is ideal for individuals wanting to improve their MiniTab skills. Individuals with no previous MiniTab experience who need to use the software to create and manipulate data files, conduct basic data analysis, conduct basic quality tools such as Run Charts, Pareto Charts and Cause and Effect Diagrams, or who set-up a DOE Run Matrix should register.

CLASS OBJECTIVES:
At the end of the class, attendees should be able to:
- Input data and create data files
- Manipulate data files
- Produce a variety of charts and graphs
- Edit charts and graphs
- Conduct basic data analysis

CLASS DETAILS:
Date & Time: March 12, 2018 | 8:30 AM – 5:00 PM
Location: Baker College of Jackson
2800 Springport Rd | Jackson, MI 49202

Training Costs: <$395 members / $495 non-members>

REGISTER TODAY:
Deadline February 1, 2019

<www.academy4mfgcareers.com>
We’ve all heard the expression “garbage in, garbage out.” The same can be applied when product acceptance or process control decisions are based on invalid data. Measurement Systems Analysis (MSA) examines the sources of variation in the measurement process as well as information about measurement characteristics based on accuracy, precision and stability. This course equips participants with the knowledge and skills needed to complete required areas of the organization’s MSA activities. Discussions/exercises involving gage R&R studies, gage selection, and the basics of measurement systems are included.

CLASS OBJECTIVES:
Attendees receive the knowledge and tools needed to objectively evaluate the effectiveness of their MSA planning process. Upon course completion, the attendee will be able to:

- Describe the recommendations of the AIAG MSA guideline
- Identify the interrelationship of tolerance limits and upper and lower control limits
- Explain the benefits and need for doing gage R&R studies
- Define the meaning of terms used in the MSA guideline and applicable activities
- Recognize the need for gage accuracy and which tools would apply to which type of gage

CLASS DETAILS:
Date & Time: April 9, 2019 | 8:00am-4:30pm | Steve Vamplew
Location: Baker College of Jackson, Engineering Building
2800 Springport Road  |  Jackson, MI 49202
Training Costs: $395 members / $495 non-members

REGISTER TODAY:
Registration deadline March 8, 2019 at 4pm
Please register at www.academy4mfgcareers.com
Almost every process within an organization has at least one problem. As a leader, trying to address each problem is impossible. Providing employees with Six Sigma Green Belt training equips them with a logical and objective way to identify, measure and eliminate them. Suddenly, employees don’t have to just cope with the challenges – they begin to recognize and implement solutions to them. A down-to-earth blend of DMAIC project management methods and practical data analysis techniques provide employees, at any level of the organization, with new ways to contribute to the bottom line. From executive leaders to frontline employees, Six Sigma Green Belt training enhances the way employees approach their day-to-day work.

CLASS OBJECTIVES:
This course is structured to allow the learner time to apply what he or she learns in the classroom to the completion of a sponsor-endorsed project. When the class ends, participants receive a certificate of completion and are able to:

- Describe the tools and methods used in Six Sigma process improvement
- Recognize appropriate Six Sigma improvement projects
- Apply the DMAIC problem-solving strategy in the context of a continuous improvement project

CLASS DETAILS:
**Date & Time:** June 11, 12, 18, 19 & 20, 2019 | 8:30am-5:00pm | Anna Stefos

**Location:** Baker College of Jackson, Engineering Building
2800 Springport Road | Jackson, MI 49202

**Training Costs:** $2,100 members / $2,200 non-members

REGISTER TODAY:
Registration deadline May 10, 2019 at 4pm

Please register at [www.academy4mfgcareers.com](http://www.academy4mfgcareers.com)
Do you have an employee with leadership potential or a newly promoted supervisor/foreman and want to give him or her practical management training? This is the class. Each class section will contain key aspects of effective leadership, equipping participants with the knowledge and skills to thrive in today’s manufacturing management environment.

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- Behavior characteristics
- Effective time management
- Leading people through change
- On-the-job training
- Effective communication
- Building better teams
- Handling conflict
- Motivation
- Making meetings work
- Employee discipline

CLASS DETAILS:
Date & Time: September 10, 12, 17 & 19, 2019 | 8:00am-4:30pm | Charlie Westra

Location: Baker College of Jackson, Engineering Building
2800 Springport Road | Jackson, MI 49202

Training Costs: $925 members / $975 non-members

REGISTER TODAY:
Deadline August 9, 2019 at 4pm
Register at www.academy4mfgcareers.com
ISO 9001:2015 Internal Auditor training provides the knowledge necessary for company staff to serve as internal ISO 9001 auditors. Participants will master the requirements for structure and documentation of an ISO 9001 Quality Management System – which are key points an internal audit will address. Learn the audit methodology and techniques, as well as how to identify and report internal audit non-conformity. This course will cover how to convert a written procedure into process auditing documents. Corrective and preventive action will be reviewed. This includes an overview of the 2015 standards and requirements, as well as hands-on practice exercises for ISO 9001.

CLASS OBJECTIVES:
After attending ISO 9001:2015 Internal Auditor training, attendees will possess the knowledge and tools needed to objectively evaluate the effectiveness of their ISO 9001 program. The attendee will be able to:

- Apply the standards
- Plan & perform an audit
- Construct audit checklists
- Apply appropriate standards to recognize conformance and nonconformance

CLASS DETAILS:
**Date & Time:** September 23, 24, & 25, 2019  |  8:00am-4:30pm  |  Miguel Gomez

**Location:** Baker College of Jackson, Engineering Building
2800 Springport Road  |  Jackson, MI 49202

**Training Costs:** $695 members / $795 non-members

**REGISTER TODAY:**
Registration deadline August 23, 2019 at 4pm

Please register at [www.academy4mfgcareers.com](http://www.academy4mfgcareers.com)
Gain a better understanding of the planning, launch and validation of new products or processes. It blends the three core tools of Advanced Product Quality Planning (APQP), Production Part Approval Process (PPAP) and Failure Mode and Effects Analysis (FMEA) and guides participants through important steps of the launch process. Utilized correctly, the deployment of these core tools leads to continuous improvement, defect prevention and the reduction of variation and waste.

CLASS OBJECTIVES:
After attending this course, attendees will have the tools needed to objectively evaluate the effectiveness of their planning (APQP, FMEA and PPAP) process. Attendees will be able to:

- Describe the recommendations of the APQP guideline
- Conduct an FMEA for design or process situations
- Complete a PPAP warrant, dimensional study or other required activity
- Apply the planning results to a Control Plan

CLASS DETAILS:
Date & Time: October 8, 9, 2019 | 8:00am-4:30pm | Miguel Gomez
Location: Baker College of Jackson, Engineering Building
2800 Springport Road | Jackson, MI 49202
Training Costs: $795 members / $895 non-members

REGISTER TODAY:
Registration deadline September 6, 2019 at 4pm
Please register at www.academy4mfgcareers.com
Charlie Westra, Growth Services Program Manager

Charlie Westra is a Program Manager in The Center’s Growth Services group. With responsibilities spanning across many areas, his role includes developing online growth strategies, management consulting, and team building techniques. He specializes in improving employee engagement and supervisory skills, as well as leadership development. Charlie routinely works both collectively with the management and sales teams at a client’s location, and individually with managers to develop customized workplace tools tailored to their specific needs and goals, ultimately producing sustainable, positive results.

Charlie also devotes time to assisting clients in developing and implementing plans for online growth, using a hands-on approach to create a solid strategy through marketing plan development and evaluation, critiquing online business goals, and analyzing corresponding metrics. Pulling from a variety of methods for improvement such as web development, social media integration, email campaigns, and print advertising, Charlie seeks to help clients reach their full online potential.

Charlie’s philosophy of “Teaching How to Fish” is the key to his success for clients seeking sustainable results achieved through internal resources.

Professional Experience

Before working at The Center, Charlie spent six years working for an advertising agency in Southern Michigan leading the web sales division, with The Center as his primary client. There he gained an insider’s view into the structure and function of dozens of Michigan firms. Previously, Charlie worked in the Quality Department of a wire component manufacturer for nine years where he was quickly promoted to Quality Manager, gathering skills with Internal Auditing, Process Evaluation, and Quality Documentation. Before that, Charlie held the title of pressman then manager at a print shop in Kalamazoo, Michigan for over five years. Charlie studied both Elementary Education and Marketing.

Charlie uses his education and manufacturing background combined with his customer service and project management skills to effectively drive The Center’s Growth Services department into the next decade.

Chuck Werner, Lean Program Manager and Six Sigma Master Black Belt

Chuck Werner has been a Program Manager with the Michigan Manufacturing Technology Center since 2016. His areas of expertise are in Lean, Six Sigma and Quality.

Professional Experience

Chuck has accumulated nearly 30 years of experience in manufacturing, most of it as a Tier I supplier in automotive. His prior companies include Pilkington Glass, Guilford Performance Textiles by Lear and L&W Engineering. After taking a break from manufacturing for one year to work at the corporate headquarters of a large banking institution, the “song of production” ultimately lured him back to the industry. Through his decades of experience, Chuck has accumulated process knowledge in areas including glass manufacturing, injection molding, adhesive systems, knitting, jet and tank dye, fabric finishing, flame lamination and welding processes (spot and MIG). While most of his time in manufacturing has been in the areas of Operations, Quality and Engineering, Chuck has found that the tools of Lean and Six Sigma are universally applicable regardless of department or role.
Education
Chuck holds a Bachelor of Business Leadership from Baker College.

Professional Memberships
Chuck achieved his certification as a Lean Six Sigma Black Belt in 1996 and his Master Black Belt certification in 2011. Additionally, he is a Training Within Industry (TWI) Master Trainer and is certified in OSHA Compliance and Accident Reduction. Chuck served four years in the United States Army in a military intelligence role.

*George Singos, Business Leader Advisor*

George Singos is the Business Leader Advisor for the Michigan Manufacturing Technology Center. He has more than 30 years of manufacturing experience in various capacities. For the past 20 years, he has focused on sales and marketing management both domestically and internationally.

Professional Experience
Prior to joining The Center, George spent the previous 10 years working in International Business Development. His primary focus was growing International Sales in Europe and East Asia while supporting North American, South American and ASEAN operations. He held various positions at GKN, Dover Corporation, Barnes Group, Johnson Controls and a number of smaller companies mostly in material processing and assemblies. His experience includes Business Development, Sales & Marketing Management, Project Planning, Quality Management, Costing and Scheduling.

Education
George has a BS in Social Science / Industrial Technology from Eastern Michigan University, an MSA in International Administration from Central Michigan University and post-graduate work in Marketing Management from Oakland University. Currently, he is working on a post-graduate certificate in Business Turnaround Management at the University of Detroit Mercy.

*Michael Beels, Lean Program Manager*

Michael Beels has served in the role of Lean Program Manager for the Lean Business Solutions Team at the Michigan Manufacturing Technology Center for more than 12 years. Michael’s areas of expertise include Change Leadership, Workforce Engagement, and Succession Planning, as well as the entire portfolio of Lean strategies and methodologies. Michael has been prominent in the development of the “Lean Office” Program at The Center, helping organizations identify waste and improve processes on the “carpet” side of the business. Michael is a professional trainer and has the ability to command an audience and deliver the training message in a way that participants can understand in a clear, non-threatening manner. He leaves trainees charged up and ready to complete training transfer to the shop floor or office environment.

Professional Experience
Prior to joining The Center, Michael was a Value Stream Manager at Mark IV Automotive, a Tier One supplier of fuel filler necks to the major automotive manufactures. Michael’s 30 year manufacturing career has also taken him through G.M. Powertrain Warren, and Unique Fabricating, a company specializing in the creation of sound deadening and vibration control applications.

Education
Master of Arts in Training & Development, Oakland University
Bachelor of General Studies, Oakland University
Anna Stefos, Operational Excellence Manager and Lean Six Sigma Maser Black Belt

Anna Stefos has a strong diverse and comprehensive automotive background spanning 20 combined years at GM and FCA, ranging from International Manufacturing, to Product Development, Strategic Planning, Program Management, Corporate Strategy, and International Operations. Anna’s strong experience in partnering with C-level executives provides a strong foundation for coaching and advising small and medium companies achieve Enterprise Transformation and propel them towards Operational Excellence.

Anna holds a BS in Chemical Engineering and an MBA in international marketing, Strategy, and Joint Ventures, both from Wayne State University. Anna holds Certifications from the University of Michigan and Lawrence Technological University: Lean Six Sigma Master Black Belt, Lean Cross Industry, Lean Manufacturing, Lean Toyota Production System, PMP, Leadership and Executive Development, and Teach English as a Foreign Language.

Anna has a passion for writing, teaching, and coaching.

Miguel Gomez, Quality Program Manager

Miguel is a Quality Program Manager at The Center. In his role, Miguel manages and delivers training and implementation assistance for Quality and Environmental Management Systems. Miguel comes from a strong technical background in Quality operations management, utilizing his experience in the industry to assist companies with implementing management systems including ISO 9001:2015, IATF 16949, ISO 14001 and Core Tools. Miguel has extensive knowledge of Quality standards, bringing with him a number of certifications which include:

- Exemplar Global Certified ISO 9001:2015 Lead Auditor with AIAG IATF 16949:2016 Supplier Auditor certification
- ASQ Certified Quality Auditor

Professional Experience
Miguel has more than 30 years of experience in Quality, manufacturing and management positions in a variety of industries including automotive, electronics and plastics. Miguel previously worked as a Quality Assurance Manager at Federal Mogul, where his responsibilities included managing and maintaining Quality systems and certifications, implementing preventative and corrective actions to eliminate the root causes of poor quality and delivery problems, and working with Tier 1 suppliers whose clients included GM, Ford, Fiat, Chrysler, Alfa Romeo and Nissan. In the past, Miguel was employed at Advanced Filtration Systems Inc. as a Quality and Continuous Improvement Manager where he managed the Quality and Continuous Improvement programs for Caterpillar/AFSI facilities in both the U.S. and Europe, as well as supported initiatives in other facilities worldwide. Miguel also spent 10 years working for the Eaton Corporation as a Quality Systems/Operations Excellence Manager where he led strategic Quality planning and helped companies achieve certifications in ISO 9001, QS-9000, ISO/TS 16949, IATF 16949 and ISO 14001.
**Education**
Miguel has a Bachelor’s degree in Industrial Engineering with a minor in Mathematics from the University of Puerto Rico, in addition to a Master’s degree in Business Administration from Southern New Hampshire University.

**Steve Vamplew, Quality Program Manager**
Steve is a Quality Program Manager at the Michigan Manufacturing Technology Center. In his role, Steve manages and delivers consulting, training and implementation assistance for Quality and Environmental Management Systems to small and medium-sized manufacturers. Steve has extensive quality, manufacturing and management experience working in the automotive industry at OEMs and Tier 1 suppliers. He leverages this experience to assist manufacturers with the implementation of ISO 9000:2015, IATF 16949, ISO 14001, AS 9100D and training on automotive Core Tools.

**Professional Experience**
As a Senior Member of ASQ, Steve has more than 25 years of experience in the quality profession, providing him with a wide range of credentials and experience in quality and environmental management systems, supplier development and problem-solving methods. Previously, Steve has worked as a Quality Auditor and Quality Manager at plant and corporate levels, where he supported global manufacturing locations in Japan, China, Mexico, Vietnam and the Philippines. Steve has worked to develop guidelines and customer-specific standards for automotive suppliers to ensure they met or exceeded OEM requirements. He has been a Lead Auditor and Management Representative for both ISO/TS 16949 and ISO 14001, and is an AS9100D Internal Auditor, in addition to leading companies to successful third-party registrations.

**Education**
Steve earned a Bachelor of Science degree in Broadcasting & Cinematic Arts from Central Michigan University, minoring in Psychology and Military Science.
We Love What We Do...

At DASI Solutions, we are dedicated to service and support, offering SOLIDWORKS engineering software solutions, accompanied by best-in-class training and support. We are passionate in playing an active role in the engineering community, continuing to build partnerships and success stories with our commercial and educational customers.

With our award-winning team, DASI Solutions assists emerging sector companies in the implementation of CAD, CAE and PDM collaborative technologies used by the designing engineer. Our customer is anyone who designs a product – no matter how big or small – and desires a more engaging and interactive customer experience. DASI Solutions has authorized sales, training and technical support facilities throughout Arizona, California, Indiana, Kansas, Michigan and Missouri.

While world-class tools are important, they only provide a piece of the puzzle.

At DASI, we back the products we sell with unique, high-value services which regularly meet or exceed our customers’ expectations.

CONTACT INFO:
Phone: 888-327-2974
Website: www.dasisolutions.com
SolidWorks is the World’s #1 Mainstream 3D Design Software Package! JAMA member DASI Solutions is Your Source for SolidWorks in the Great Lakes!

Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 4-day SolidWorks Essentials program teaches you how to use the SolidWorks mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

Topics covered in this course include:

Lesson 1: Basic and the user Interface  Lesson 8: Editing: Repairs
Lesson 2: Introduction to Sketching  Lesson 9: Editing: Design Changes
Lesson 3: Basic Part Modeling  Lesson 10: Configuration of Parts
Lesson 4: Modeling a Casting or Forging  Lesson 11: Design Tables and Equation
Lesson 5: Patternning  Lesson 12: Bottom-Up Assembly Modeling
Lesson 6: Revolved Features  Lesson 13: Using Assemblies
Lesson 7: Shelling and Ribs

Prerequisites: Mechanical design experience; experience with the Windows™ operating system.

Dates: January 21, 22, 23, & 24, 2019
Times: 8:30am-5:00pm
Location: Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI
Training Costs: $1495
Register: www.academy4mfgcareers.com

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.
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JAMA member DASI Solutions is Your Source for SolidWorks in the Great Lakes!

Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 1-day SolidWorks Weldments program teaches you how to create welded structures with standard structural members. Weld beads are also covered.

Topics covered in this course include:

Lesson 1: Weldments
- Weldments
- Structural Members
- Groups vs. Structural Members
- Adding Plates
- Weld Beads
- Using Symmetry
- Gussets and End Caps
- Profile Sketches
- Working with Weldments
- Managing the Cut List
- Custom Properties
- Weldment Drawings
- Manual Trimming of Structural Members

Lesson 2:
- Working with Pipes and Tubing
- 3D Sketching
- Weldments and Sheet Metal in Assemblies

Dates: February 1, 2019
Times: 8:30am-5:00pm
Location: Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI
Training Costs: $300
Register: www.academy4mfgcareers.com

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SolidWorks is the World’s #1 Mainstream 3D Design Software Package! JAMA member DASI Solutions is Your Source for SolidWorks in the Great Lakes!

Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 3-day Solidworks Simulation is designed to make Solidworks users productive more quickly with the Solidworks Simulation Bundle. This course will provide an in-depth coverage on the basics of Finite Element Analysis (FEA), covering the entire analysis process from meshing to evaluation of results for parts and assemblies. The class discusses linear stress analysis, gap/contact analysis, and best practices.

Topics covered in this course include:

- Lesson 1: The Analysis Process
- Lesson 2: Mesh Controls, Stress Concentrations and Boundary Conditions
- Lesson 3: Assembly and Analysis with Contacts
- Lesson 4: Symmetrical and Free Self-Equilibrated Assemblies
- Lesson 5: Assembly Analysis with Connectors and Mesh Refinement
- Lesson 6: Compatible/Incompatible Meshes
- Lesson 7: Analysis of Thin Components
- Lesson 8: Mixed Meshing Shells and Solids
- Lesson 9: Beam Elements-Analysis of Conveyor Frame
- Lesson 10: Mixed Meshing Solids, Beams and Shells
- Lesson 11: Design Study
- Lesson 12: Thermal Stress Analysis
- Lesson 13: Adaptive Meshing
- Lesson 14: Large Displacement Analysis

**Prerequisites:** Knowledge of Solidworks and basic mechanical engineering concepts is recommended.

Dates: March 11, 12, & 13, 2019  
Times: 8:30am-5:00pm  
Location: Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI  
Training Costs: $1795  
Register: www.academy4mfgcareers.com

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Lesson 3: Basic Part Modeling  
Lesson 4: Modeling a Casting or Forging  
Lesson 5: Patternning  
Lesson 6: Revolved Features  
Lesson 7: Shelling and Ribs  
Lesson 8: Editing: Repairs  
Lesson 9: Editing: Design Changes  
Lesson 10: Configuration of Parts  
Lesson 11: Design Tables and Equation  
Lesson 12: Bottom-Up Assembly Modeling  
Lesson 13: Using Assemblies

Prerequisites: Mechanical design experience; experience with the Windows™ operating system.

Dates: April 15, 16, 17, & 18, 2019  
Times: 8:30am-5:00pm  
Location: Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI  
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Register: www.academy4mfgcareers.com
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Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 1-day Solidworks Mold Design teaches you several manual mold creation techniques and how to use the Mold Tools in Solidworks mechanical design automation software.

Topics covered in this course include:

Lesson 1: Surface Concepts and Imported Geometry
Lesson 2: Core and Cavity
Lesson 3: Side Cores and Pins
Lesson 4: Advanced Parting Line Options
Lesson 5: Creating Custom Surfaces for Mold Design
Lesson 6: Advanced Surfacing for Mold Design
Lesson 7: Alternative Methods for Mold Design
Lesson 8: Reusable Data
Lesson 9: Completing the Mold Base

Prerequisites: Advanced Part Modeling

Dates: April 19, 2019
Times: 8:30am-5:00pm
Location: Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI
Training Costs: $300
Register: www.academy4mfgcareers.com

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JAMA member DASI Solutions is Your Source for SolidWorks in the Great Lakes!

Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 1-day SolidWorks Sheetmetal program teaches you how to build sheet metal parts using SolidWorks mechanical design automation software. Building standalone sheet metal parts and converting conventional parts to sheet metal, including in assembly context, are covered.  
Topics covered in this course include:

Lesson 1: Modeling Sheetmetal Parts  
Sheet Metal Methods, Stages in the Process, Sheet Metal Toolbar, Sheet Metal Features, Designing with Sheet Metal Features, Miter Flanges, Edge Flanges, Bend Angles, Adding a Tab, Flat Pattern, Cuts, and Sheet Metal Parts in Drawings.

Lesson 2: Sheet Metal Forming Tools  
Standard Tools, Creating a Custom Forming Tool.

Lesson 3: Additional Sheet Metal Features  
Edge Flanges and Closed Corners, Curved Edge Flanges, Hems, Designing in Flat, Existing Rounds, Using Symmetry, Manual Relief Cut, Break Corner, Jog Feature, Lofted Bends, and Bend Deviation.

Lesson 4: Converting Parts to Sheet Metal  

Dates: May 13 & 14, 2019  
Times: 8:30am-5:00pm  
Location: Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI  
Training Costs: $600  
Register: www.academy4mfgcareers.com

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.
SolidWorks is the World’s #1 Mainstream 3D Design Software Package! JAMA member DASI Solutions is Your Source for SolidWorks in the Great Lakes!

Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 4-day SolidWorks Essentials program teaches you how to use the SolidWorks mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

Topics covered in this course include:

- Lesson 1: Basic and the user Interface
- Lesson 2: Introduction to Sketching
- Lesson 3: Basic Part Modeling
- Lesson 4: Modeling a Casting or Forging
- Lesson 5: Patterning
- Lesson 6: Revolved Features
- Lesson 7: Shelling and Ribs
- Lesson 8: Editing: Repairs
- Lesson 9: Editing: Design Changes
- Lesson 10: Configuration of Parts
- Lesson 11: Design Tables and Equation
- Lesson 12: Bottom-Up Assembly Modeling
- Lesson 13: Using Assemblies

**Prerequisites:** Mechanical design experience; experience with the Windows™ operating system.

**Dates:** July 22, 23, 24, & 25, 2019  
**Times:** 8:30am-5:00pm  
**Location:** Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI  
**Training Costs:** $1495  
**Register:** [www.academy4mfgcareers.com](http://www.academy4mfgcareers.com)
SolidWorks is the World’s #1 Mainstream 3D Design Software Package!
JAMA member DASI Solutions is Your Source for SolidWorks in the Great Lakes!

Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 1-day SolidWorks Weldments program teaches you how to create welded structures with standard structural members. Weld beads are also covered.

Topics covered in this course include:

Lesson 1: Weldments
- Weldments
- Structural Members
- Groups vs. Structural Members
- Adding Plates
- Weld Beads
- Using Symmetry
- Gussets and End Caps
- Profile Sketches
- Working with Weldments
- Managing the Cut List
- Custom Properties
- Weldment Drawings
- Manual Trimming of Structural Members

Lesson 2:
- Working with Pipes and Tubing
- 3D Sketching
- Weldments and Sheet Metal in Assemblies

Dates: July 26, 2019
Times: 8:30am-5:00pm
Location: Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI
Training Costs: $300
Register: www.academy4mfgcareers.com
SolidWorks is the World’s #1 Mainstream 3D Design Software Package! JAMA member DASI Solutions is Your Source for SolidWorks in the Great Lakes!

Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 4-day SolidWorks Essentials program teaches you how to use the SolidWorks mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

Topics covered in this course include:

Lesson 1: Basic and the user Interface
Lesson 2: Introduction to Sketching
Lesson 3: Basic Part Modeling
Lesson 4: Modeling a Casting or Forging
Lesson 5: Patterning
Lesson 6: Revolved Features
Lesson 7: Shelling and Ribs

Lesson 8: Editing: Repairs
Lesson 9: Editing: Design Changes
Lesson 10: Configuration of Parts
Lesson 11: Design Tables and Equation
Lesson 12: Bottom-Up Assembly Modeling
Lesson 13: Using Assemblies

Prerequisites: Mechanical design experience; experience with the Windows™ operating system.

Dates: November 11, 12, 13, & 14, 2019
Times: 8:30am-5:00pm
Location: Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI
Training Costs: $1495
Register: www.academy4mfgcareers.com

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.
SolidWorks is the World’s #1 Mainstream 3D Design Software Package!
JAMA member DASI Solutions is Your Source for SolidWorks in the Great Lakes!

Need SolidWorks training? JAMA and DASI Solutions have the training you need! DASI’s 1-day *SolidWorks Surface Modeling* teaches you how to build free-form shapes using SOLIDWORKS mechanical design automation software.

Topics covered in this course include:

Lesson 1: Understanding Surfaces
Lesson 2: Introduction to Surfacing
Lesson 3: Solid-Surface Hybrid Modeling
Lesson 4: Repairing and Editing Imported Geometry
Lesson 5: Advanced Surface Modeling
Lesson 6: Blends and Patches
Lesson 7: Master Model Techniques

**Prerequisites:** Solidworks Essentials, Advanced Part Modeling

**Dates:** November 15, 2019  
**Times:** 8:30am-5:00pm  
**Location:** Baker College, Building 100, Room 133, 2800 Springport Road, Jackson, MI  
**Training Costs:** $300  
**Register:** [www.academy4mfgcareers.com](http://www.academy4mfgcareers.com)
MIOSHA Training Institute

MIOSHA offers certificates for attending specified workshops and seminars through the MIOSHA Training Institute (MTI). Certificate programs are available for General Industry Safety and Health as well as Construction Safety and Health.

The MTI was formed as a part of a MIOSHA alliance with the Workforce Development Institute at Macomb Community College to jointly reach out, educate, and assist the state’s employers and employees to improve and advance workplace safety and health. These seminars and workshops are offered throughout the state in partnership with other safety and health organizations, community colleges, and associations. In addition to MTI courses, the Consultation Education and Training Division offers seminars and workshops on relevant safety and health topics.
An Informative Full-Day Seminar:

**Parts 35, 90 and 490**

**Confined Space in Construction and Permit Required Confined Spaces in General Industry**

1. **Who Should Attend . . .**

This program is a must for anyone concerned about health and safety on the job including:

- Managers concerned about workers’ compensation costs.
- Employees who want to learn proper techniques for protecting their safety and health at work.
- Business owners who want to learn about compliance with Michigan Occupational Safety and Health Administration (MIOSHA).

2. **MIOSHA Training Institute**

MIOSHA Consultation Education and Training (CET) Division and Macomb Community College (MCC) have developed the MIOSHA Training Institute (MTI) through a formal alliance. The MTI introduced an Assessment-Based Certificate program, effective October 1, 2007. The certificate program offers participants an opportunity to be recognized for their educational efforts and increased technical expertise. Courses are offered throughout the state in sponsorship with other M–TECSM facilities, community colleges, and safety and health organizations. To learn more about the certificate program, log-on to the CET Division website at [www.michigan.gov/mti](http://www.michigan.gov/mti).

3. **What You’ll Learn . . .**

This course will provide an overview of both the construction and general industry rules related to confined spaces and permit-required confined spaces. Examples of actual spaces will be used to clarify the definition and facilitate proper identification of confined spaces versus permit-required confined spaces. The three means of entering a permit-required confined space are described in Part 35, 90, and 490. These will be discussed along with their correct implementation. This course also includes an introduction to the principles of air monitoring and ventilation of confined and permit-required confined spaces.

**Agenda**

- Define and apply the definition of a confined space and a permit-required confined space.
- Describe the requirements of MIOSHA Part 35 Confined Space in Construction and Part 90 and 490 Permit-Required Confined Spaces.
- Identify and apply the three methods to enter a permit space:
  - permit entry,
  - alternate entry,
  - reclassification
- Apply the basic principles of air sampling and confined space ventilation.

The meeting site and parking is accessible. Individuals attending the meeting are requested to refrain from using heavily scented personal care products, in order to enhance accessibility for everyone. People with disabilities requiring additional services (such as materials in alternative format) in order to participate in the meeting should call 517-284-7720 at least 30 days before the program. The Department of Licensing and Regulatory Affairs is an equal opportunity employer/program.

[www.michigan.gov/lara](http://www.michigan.gov/lara)
**MIOSHA Education Training**
**Materials Have Gone Electronic**

MIOSHA Training Institute (MTI) has changed the delivery of its printed education materials to an electronic format. The student training manual and course reference materials will be provided in electronic format via email for students to download and print before class if they wish.

**Important**: When registering for this class, please provide your complete email address.

**Remember to download your course handouts ahead of time!**

### Frequently Asked Questions

**Q: Will I be able to print my materials at the seminar or workshop?**
**A:** No printing services will be available. Print or download the presentation slides before you arrive for the class.

**Q: What electronic format will the handouts be in?**
**A:** All materials will be available as PDF documents.

**Q: Will I be able to charge my device at the seminar or workshop?**
**A:** We recommend that your device is fully charged before you arrive. Charging stations may not be available in the classroom.

**Q: What happens if I do not receive an email?**
**A:** In the unlikely event that you do not receive the link via email, please call the contact number listed on the next page for assistance.
Facilitator

Jenelle Thelen is an Industrial Hygienist with MIOSHA Consultation Education and Training serving the lower central Michigan region. She rejoined MIOSHA in June, 2012 adding to her previous service with MIOSHA CET from 2000-2005.

Jenelle has over 25 years of experience in industrial hygiene, occupational safety and environmental regulatory compliance. Her work experience includes: laboratory and regulatory compliance within industrial manufacturing; Training Manager and Associate Director of Safety for the University of Kansas Medical Center; Nursing Home Consultant/Trainer for the Lansing Area Safety Council; and Safety & Health Coordinator for the Michigan Department of Community Health.

Jenelle has a Master of Science in Industrial Hygiene from the University of Central Missouri and a Bachelor of Science in Secondary Education – Science.

Jenelle Thelen
Senior Industrial Hygienist,
MIOSHA, CET Division

Program Details

DATE: March 27, 2019
LOCATION: Alro Processing Center
2500 Enterprise Drive
Jackson, Michigan 49203
COST: $120 per person.
Includes warm lunch and course materials.

TIME: Check-in - 8:30 a.m.
Program - 9:00 a.m. to 4:00 p.m.
DEADLINE: Register by March 20, 2019
Please register early!
CONTACT: Olivia Steele - (517) 782-8268
osteele@mijama.org

COSPONSOR: Jackson Area Manufacturers Association (JAMA) / Academy for Manufacturing Careers

Parts 35, 90 and 490 - Confined Space in Construction and Permit Required Confined Spaces in General Industry

How to Register

Three Easy Ways to Register:

Fax: (517) 435-4126
Email: osteele@mijama.org
Mail: JAMA/Academy for Manufacturing Careers
2545 Spring Arbor Road, Suite 201
Jackson, Michigan 49203-3791
Attn: Olivia Steele

Please enclose check or money order made payable to:
Academy for Manufacturing Careers

Complete Separate Registration Form for Each Attendee

Name:
Company Name:
Address:
City: State: Zip:
Phone: Fax:
Email: (Required for Registration)
Credit Card #:
Credit Card Security Code: (Three or Four Digits)
Visa □ Master Card □ Discover □ American Express □
Print Credit Card Holder’s Name:
Signature: Exp. Date:

All meetings are accessible and barrier free. Please contact the cosponsor or the CET Division, at least 30 days in advance, to request necessary accommodations.
As a part of WESCO, Englewood Electrical Supply Corporation (EESCO) supports our customers locally through our two Rockwell Automation authorized distributor locations in Jackson and Adrian, MI. We offer products and solutions for all your industrial automation needs including Rockwell Automation, MRO products, lighting and energy solutions, general supplies, industrial consumables, renewable energy, security cameras, enterprise networking hardware and wire and cable.

EESCO provides extensive design services and solutions, vast product selection, technical support and state-of-the-art logistics capabilities required to meet your local, national or international needs.

Industrial workforces are being pressured like never before. The systems they must productively design, operate, and maintain are more connected and complex. Roles and responsibilities have expanded, requiring more diverse skillsets. In addition, older workers are moving into retirement, which leaves skills and knowledge gaps. Through our partnership with Rockwell Automation, we can provide training where and when needed to help address these issues. Whether you want to sign up for an available training or schedule a custom package with our Training Coordinators, contact us today!

EESCO Englewood Electric
Phone: 517-782-7121
Dave Rhodes & Linden Costa: 
DRhodes@EESCODist.com
LCosta@EESCODist.com
CCP146 - ControlLogix/Studio 5000
Studio 5000 Logix Designer Level 1: ControlLogix® System Fundamentals

After completing this course, you should be able to perform basic ControlLogix and Studio 5000 Logix Designer™ tasks, such as Creating and configuring a project and communicating with a controller. This course will assist you in developing and building a solid foundation with a fundamental knowledge of ControlLogix® and other Logix5000™ systems. You will be introduced to basic Logix5000 concepts and terminology, and you will be exposed to Logix5000 system hardware, including hands-on experience with the ControlLogix platform. You will also have an opportunity to use Studio 5000 Logix Designer™ application to perform basic system configuration tasks.

CCP151 - ControlLogix/Studio 5000
Studio 5000 Logix Designer Level 2: Basic Ladder Logic Programming Course

This course is a skill-building course that provides you with the resources and hands-on practice required to program basic ladder logic instructions for any Logix5000™ controller. You will have an opportunity to use the Studio 5000 Logix Designer™ application to perform basic software tasks to meet the requirements of a given functional specification. In addition, you will set up a sequencer to run equipment through a predefined procedure and separate production procedure from equipment control.

CCP250 - ControlLogix/Studio 5000 Logix Designer
Accelerated Logix5000 Programmer Certificate

This accelerated course is for individuals who can quickly learn and apply Logix5000™ concepts, terminology, hardware, and the Studio 5000 Logix Designer® programming environment. You will quickly move from these early concepts to using producer/consumer technology and messages to multicast input and output devices, share data between controllers, and control remote I/O. This course prepares you for the Accelerated Logix5000 Programmer Certificate Course Level 1 certificate exam, which is included in the course price. Upon completion of this course, given a functional specification for a Logix5000 application, you should be able to develop a project to meet the specification requirements. This course covers tasks common to the following hardware, which use the Logix5000 control engine, or operating system; ControlLogix® and CompactLogix™ controllers. These tasks include creating a new project, programming an application, and adding advanced functionality (e.g. data arrays, add-on instructions, produced/consumed data, and messages) to the application.

CCP300 - ControlLogix/Studio 5000
Accelerated Logix5000 Maintainer Certificate Level 1

This accelerated course is for individuals who can quickly learn and apply Logix5000™ concepts, terminology, hardware troubleshooting skills, and interpretation of ladder logic in a Studio 5000 Logix Designer® project. This course prepares you for the Logix5000 Maintainer Certificate Course Level 1 certificate exam, which is included in the course price. You will have the opportunity to develop and practice these skills by learning basic concepts and terminology used with logix5000 system hardware, the Studio 5000 Logix Designer application, and RSLinx® Classic software. Concepts like Practicing a strategy for diagnosing and troubleshooting problems, Configuration issues with controllers, I/O, or other hardware, Electrical noise, Faulty/malfunctioning field devices and EtherNet/IP™ network issues. Upon completion of this course, you should be able to troubleshoot a previously operational Logix5000 system and restore normal operation.

# Upcoming Trainings in Troy, Michigan:

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<thead>
<tr>
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<th>End</th>
<th>Course #</th>
<th>Training</th>
<th>Cost/Student</th>
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<tr>
<td>01/08/2019</td>
<td>01/11/2019</td>
<td>CCP143</td>
<td>Studio 5000 Logix Designer Level 3: Project Development</td>
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<td>Studio 5000 Logix Designer Level 1: ControlLogix Fundamentals and Troubleshooting</td>
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# Upcoming Trainings in Twinsburg, Ohio:

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<td>02/15/2019</td>
<td>IMINS</td>
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<td>Functional Safety for Machinery Technician Certification (TÜV Rheinland)</td>
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IN INFORMATION ABOUT AMC

TRAINING PURPOSE: To provide employees and potential employees of area manufacturing firms with the skills necessary to be productive, highly skilled workers and to earn U.S. Dept. of Labor apprenticeship certification in their chosen fields.

LEARNING METHOD: Instructor-led, using a blended learning approach with heavy emphasis on hands-on application of theory through “labs” whenever possible and applicable.

OTHER FEATURES:
- **Flexibility in Scheduling and Delivery**—Courses can be offered when they’re needed and where they’re needed. For instance, if a company has a need for training on third shift at their facility, and through the program we can register a minimum number of students to be trained, then the course will be held on third shift and at the manufacturer’s facility.
- **Flexibility in Electives**—Companies will have the ability to require additional offered courses for their apprenticeship trainees. For instance, a company may require their Machine Repair apprentices to take CNC Theory & Programming and additional Electrician courses in order to fill positions within their plant as CNC Repair Technicians.
- **Flexibility in Training Providers**—In some cases, vendors/manufacturers of equipment/software could provide additional training, either integrated directly into specific courses or as add-on special projects, labs, etc. Such training would need to be completed within the context of the overall DOL-approved program.
- **Compressed Training Time**—Courses will be offered over a shortened period of time. Courses can be completed in a few weeks instead of spread over a traditional term or semester. Training will be provided in a manner that covers the material thoroughly in as condensed a time period as possible for each course.
- **Manufacturer Oversight**—Direct, ongoing involvement by manufacturers in the program is critical to its success and continued relevance to industry’s changing needs. A Manufacturers Board of Review keeps the program relevant to the needs of the manufacturers.

ADDITIONAL NOTES:
- We will tie courses—especially within the Core Curriculum—to 11th & 12th Grade pre-apprenticeship “honors programs” available through the career/vo-tech centers, as well as to unemployed/under skilled adults through Michigan Works Southeast’s “work credentialing” program. Additionally, non-apprenticeship track employees/individuals will have opportunities to take individual courses when offered assuming the employees/individuals have taken courses and/or have acquired the skills necessary as prerequisites.
- Individual courses available through the program may be offered by multiple providers.
MAILING ADDRESS:
The Academy for Manufacturing Careers
Jackson Area Manufacturers Association
2545 Spring Arbor Road, Suite 201
Jackson, MI 49203

Telephone: 517-782-8268
Fax: 517-435-4126
E-mail: jama@mijama.org
Website: www.academy4mfgcareers.org

ADMISSION:
The Academy for Manufacturing Careers is open to all individuals. Students must be at least 16 years of age. Admission to The Academy for Manufacturing Careers does not ensure enrollment in all courses or program areas. Many courses have prerequisites; some programs have additional admission requirements. Applications are accepted and processed continually.

TYPES OF ENROLLMENT:
- Apprenticeships: To provide employees of area manufacturing firms with the skills necessary to be productive, highly skilled workers and to earn OA (Office of Apprenticeship) certification in their chosen apprenticeship fields. An apprentice must be sponsored by their employer.
- Workshops and Seminars: One-time-only offerings that provide skills for job or self-improvement.
- Certificate: Retraining of the local dislocated population in order to upgrade skills to meet the local employment demand.
- Classes: To provide relevant skilled trades training to meet the demand of local manufacturers.

Students will receive a certificate for the program in which they enrolled once all academic obligations have been met.

STARTING DATES:
- Early January
- Mid-March
- Late May
- Mid-August
- Mid-October

NOTE: On demand training start dates are per individual company request and can begin at any time.

SCHOOL HOLIDAYS:
- New Years Eve
- New Years Day
- Memorial Day
- 4th of July
- Thanksgiving Day
- Christmas Day
- Christmas Eve

The Academy for Manufacturing Careers reserves the right to modify the above dates at its discretion.

Mission: To be a leader and partner in educating a skilled workforce for today and tomorrow’s manufacturing community.
Vision: All manufacturers have the trained and skilled talent they need to succeed and grow.
Values: Partnership, Integrity, Success, Continuous Improvement
**REFUND POLICY:**
The tuition and fees paid by the applicant shall be refunded if the applicant is rejected by the school before enrollment. All tuition and fees paid by the applicant shall be refunded if requested within the enrollment periods. If a class is cancelled because of insufficient enrollment, you will be notified and your full registration fee will be refunded within 14 business days under normal circumstances.

**REGISTRATION AND PAYMENT:**
Once you decide to register for a class, the process is quick and easy. Please contact the AMC office and we will get you set-up for online registration.

**LATE REGISTRATION FEE:**
A $50 late registration fee will charged if you register for or change classes after the registration deadline.

**CLASS REMINDER:**
The Academy for Manufacturing Careers online registration program sends you an automatic email when you register. Please save this as your reminder.

**CLASS SIGN-UP POLICY:**
Students and employers are responsible for ensuring that the apprentice(s) is/are signed up for classes each term. The AMC will not send out personalized emails reminding students/employers to sign up for classes. If the student and or employer would like assistance in determining what class(es) to sign up for the AMC staff is here to assist. Every 6 months the AMC will review progress made by the apprentice in their respective program.

**RECORDED MESSAGES:**
After working hours, you may leave a recorded message at (517) 782-8268. Please provide the following information:
- Your name
- Your daytime phone number
- The class title you are interested in
- The information you are requesting

**OFFICE HOURS:**
The Academy for Manufacturing Careers Office is open 8:00 am to 4:00 p.m. Monday-Friday.

**CHANGES & CANCELLATIONS:**
Every effort is made to conduct classes as scheduled, however, The Academy reserves the right to cancel, postpone, combine classes or change instructors.

Classes cancelled due to bad weather will be rescheduled. You can check WILX, K105.3 our Facebook or Twitter pages for cancellations.
STUDENT RECORDS:
All student files and permanent records, including progress reports, final grades, and AMC staff notes are kept at our home site for one (1) calendar year at which time they are destroyed and the AMC will only retain electronic records.

COMMUNICATION:
It is important that as a student of the Academy for Manufacturing Careers that you communicate with the AMC staff. If you have an issue with or concern with an instructor, classroom, another student, labs, curriculum, etc. please contact us immediately so that we can address the situation.

STUDENT INFORMATION

BOOKS:
Some books will be returned to The Academy for Manufacturing Careers, while there are some you will get to keep. If you do not return the materials you will be invoiced for the amount of them.

MATERIALS REQUIRED FOR CLASS:
Please bring paper and pencil to all classes. All other materials will be provided.

GRADING:

<table>
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<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>4.0</td>
<td>100-93%</td>
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<tr>
<td>3.5</td>
<td>92-87%</td>
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<td>3.0</td>
<td>86-80%</td>
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<td>2.5</td>
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<td>0.0</td>
<td>59-Below</td>
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</table>

The student will receive one grade determined by all three of the following areas:

- Academic Work 35%
- Laboratory Work 40%
- Employability 25%

- ✓ Assignments
- ✓ Tests/Quizzes
- ✓ In-Class Labs
- ✓ In-Class Discussion
- ✓ Attendance
- ✓ Professional Attitude

A grade of 2.0 or higher is considered passing for each course.

ACADEMIC PROBATION/WARNING/DISMISSAL

ACADEMIC PROBATION:
Will occur if the student’s cumulative grade point average falls below 2.00 at the end of any semester. Students who are placed on probation are given the opportunity to correct the deficiency in the cumulative GPA over two regular semesters. However, they must show satisfactory improvement during the first semester of their probation period (i.e. achieve at least a 2.00 semester GPA).
**ACADEMIC WARNING:**
Will occur if the student's grade point average in the major falls below 2.00 at the end of any semester. Students who are placed on warning for major deficiency are given the chance of two semesters to clear the deficiency in the major GPA.

**DISMISSAL:**
Will occur as a result of either of the following:
1. Students on probation who did not achieve a semester average of minimum 2.00 at the end of the first semester of the probationary period.
2. Students on probation who did not raise the cumulative grade point average to a minimum of 2.00 at the end of the two regular semesters of the probationary period.

**ACADEMIC DISMISSAL APPEALS:**
A student who incurred academic dismissal may appeal in writing to the AMC. Academic dismissal appeals are considered on a case by case basis where extenuating circumstances beyond the student's control have interfered with the student's academic performance.

**INFORMATION TO BE INCLUDED IN THE APPEAL:**
1. Explain the events/circumstances that were detrimental to your academic performance during your previous enrollment at AMC
2. Attach any supporting documentations of events/circumstances that merit your appeal.
3. Describe how the events/circumstances in your appeal have been resolved.
4. Describe your plans for ensuring satisfactory academic performance in the coming academic term, should your appeal be approved.

Appeals for readmission after dismissal will be reviewed by the AMC’s Board of Directors. Students will be notified of the results of their appeals by email. (Please provide your email address in your appeal).

Please be advised that counseling, academic advising, tutoring and other support services are available to all students and are especially recommended to those students having difficulty and/or are on Academic Probation.

**GRADE APPEALS:**
If a student is not in agreement with the grade that was received in a course the students will have 7-10 days to appeal the grade in the following steps.
1. The student will be responsible for contacting the instructor to determine why the grade is not what was expected.
2. If the students does not agree with the instructor, the student can then contact the AMC. The AMC will set up a meeting for the student, instructor and AMC staff to discuss the concerns.
3. If the student still does not agree, the issue will be taken to the AMC Board by the AMC staff. The student may contact an advocate at any time at their discretion to be involved in any/all of the steps above.

ATTENDANCE:
Attendance is considered a requirement for this class. If an occasion should arise that results in your absence, you need to contact your instructor and you are REQUIRED to make up all missing assignments. **Failure to attend one or more unexcused absences from class may result in action up to and including issuance of an automatic failing grade (F) and termination of enrollment in the class. No refund of course fees will be permitted. An excused absence is an absence that the trainee schedules in advance with the instructor AND his or her manager/supervisor or for which the trainee provides acceptable documentation (such as a doctor’s excuse or written excuse from the employer) to the Academy within five days of the absence.**

CODE OF CONDUCT:
Students must conduct themselves in respectable manner at all times. Disruptive or inappropriate behavior deemed unsatisfactory conduct by school officials or AMC staff will result in possible dismissal from the Academy for Manufacturing Careers. All poor conduct will be reported to the company that you are employed with.

PROFESSIONALISM:
Failure to follow any of the following may result in receiving a 0 or F for AMC courses:

- Bring a positive attitude
- Active desire to learn
- Use time wisely
- Work to your ability
- Follow all policies and procedures set by the AMC
- Demonstrate academic honesty in the representation of his/her work
- No foul language
- Respect instructor, classmates and staff

CHEATING POLICY:
The Academy for Manufacturing Careers expects each student to uphold the highest ethical standards. This assumes that all work assigned to a student will be done by that student without unauthorized aids of copying from other students.
Instructors are required to report to the Academy staff any and all breaches of this policy. For students enrolled in an apprenticeship program track, the Academy will notify the student’s employer of the infraction and the action taken by the Academy as per this policy.

For a first offense, the Academy in consultation with the instructor (and, when applicable, the employer) will:

- Issue a warning to the student with the requirement that the offending portions of the work be revised
- OR-
- Issue an automatic failing grade (F) to the student for the work in question (e.g., quiz, project, exam).

Upon a second offense, the student will be issued an automatic failing grade (F) for the course.

In the event of a third offense, the student will be issued an automatic failing grade (F) for the course AND suspension from the Academy program for a period of one year from the date of the infraction.

For second and third offenses, no refund of course fees will be permitted.

MAKE UP WORK:
All missed assignments are the responsibility of the student to make up in a time agreed upon by the student and instructor.

DROPPING A CLASS:
You will receive a 100% refund for any class you drop on or before the last day of the registration period for the term. If you DROP after the last day of the registration period you will be responsible for 50% of the class fees. A student should not simply stop attending a class; they need to notify The Academy immediately. Failure to notify the Academy may result in you receiving a 0 or F for the class and the student will also still be responsible for full payment of the class.

GRADES:
Instructors are given two weeks to get all final paperwork turned into the AMC. Grades will be mailed to the students within 4 weeks of the completion of the course.

EVALUATIONS:
There are two evaluations conducted in each course. One at mid-term to help the instructor improve and one at the very end to provide feedback to AMC regarding the course (materials, instructors, equipment, etc.). These are very important that you fill out completely and with honesty so that the AMC can improve courses based on the
feedback that is received. It is also important that you are professional and provide constructive criticism. If you have confidential concerns that you would like addressed please contact the AMC office.

Please be aware that evaluations are confidential. If you believe that you have been retaliated against based on an evaluation please contact the AMC immediately.

PARKING AT JACKSON AREA CAREER CENTER:
No parking is allowed in courtyard at the Jackson Area Career Center (JACC). All students should park in Lot C or D (See page 14 for a map of JACC).

CLASSROOMS AT JACC:
Jackson Area Career Center has a TV by the office that will have the location of your class each night. If the TV is not working please go to the Commons area and a staff person can direct you to the correct classroom.

CELL PHONES:
Cell phones are prohibited in the classroom and lab areas. They can be used on breaks and should otherwise not be seen.

TOBACCO, ALCOHOL AND DRUG USE POLICY:
Tobacco, alcohol and drugs are prohibited on school grounds.

- Jackson County ISD, Jackson Area Career Center (JACC) – Not on the premises
- Michigan Works Southeast (MWSE) – Smoking outside in designated areas
- Litchfield Richard E. Krohn Center – Not on the premises
- Litchfield Regional Training Center – Smoking outside in designated areas
- Alro Processing Center – Smoking outside in designated areas
- LISD TECH Center – Not on the premises

If a student is caught with tobacco/alcohol products on school property, your program will be terminated. To have the possibility of reinstatement, the student will need to write a letter to the AMC Board of Review. The Board will then set-up an interview time. Afterwards the Board will vote to reinstate or continue with termination.

Any other location that the AMC offers a course, that locations policy is the policy in which AMC students and staff must abide by.
**FIREARM POLICY:**

The Academy for Manufacturing Career (AMC) prohibits students from possessing, storing, making, or using a weapon in any setting that is under the control, supervision or use of the AMC.

The term "weapon" means any object which, in the manner in which it used, is intended to be used or is represented, is capable of inflicting serious bodily harm, property damage and/or endangering the health and safety of persons. Weapons include but are not limited to firearms; guns of any type—including spring, air and gas-powered guns (whether loaded or unloaded)—that will expel a BB, pellet, or paint balls; knives; razors; clubs; electric weapons; metallic knuckles; martial arts weapon; ammunition; and explosives or any other weapon described in Title 18 U.S. Code section 921.

This policy shall also encompass such actions involving look-alike items, false fire alarms, bomb threats, or intentional calls to falsely report a dangerous condition.

AMC staff may refer an individual who violates this policy to law enforcement officials. The AMC may also take other action against the individual and/or his/her employer, including, but not limited to, not being allowed to enroll or participate in future AMC courses or programs. If the student is under the age of 18, the AMC will refer the student to the parents or guardians and may refer the student to the criminal justice or juvenile delinquency systems.

Policy exceptions include:

A. Weapons under the control of law enforcement personnel;
B. Items pre-approved by AMC staff as part of a class or individual presentation, if used for the purpose and in the manner approved; (WORKING FIREARMS AND AMMUNITION WILL NEVER BE APPROVED AS PART OF A PRESENTATION.)

This policy will be published in the Course Catalog as well as the Company Booklet. Publication is not a precondition to enforcement of this policy.

**APPRENTICE PLEASE NOTE:**

If you are an active apprentice you MUST have an overall cumulative GPA of 2.5 upon completion of your required training to be recommended to the Bureau of Apprenticeship & Training for granting your Journeyman’s Card.

**APPRENTICE RESPONSIBILITIES:**

Apprentices, having read these standards formulated by the sponsor, agree to all the terms and conditions contained herein and agree to abide by the sponsor’s rules and policies, including any amendments, and to serve such time, perform such manual
training, and study such subjects as the sponsor may deem necessary to become a skilled journeyworker.

In signing the apprenticeship agreement, apprentices assume the following responsibilities and obligations under the apprenticeship program:

A. Maintain and make available such records of work experience and training received on the job and in related instruction as may be required by the sponsor.
B. Develop and practice safe working habits and work in such a manner as to assure his/her personal safety and that of fellow workers.
C. Work for the employer to whom the apprentice is assigned for the duration of the apprenticeship, unless the apprentice is reassigned to another employer or the apprenticeship agreement is terminated by the sponsor.

WORK HOUR POLICY:
Work hours must be turned in by the 10th work day following the end of each quarter. Failure to report work hours within this time period will result in the following action:
First offense: Warning issued to apprentice and their employer. Failure to remedy the situation within five (5) work days from issuance of the warning will be treated as a second offense.
Second offense: If apprentice fails to report work hours for a second time in a 12-month period, the apprentice will be suspended from the apprenticeship for 3 months. During this time the apprentice will not be able to track hours and have them count towards the apprenticeship, nor take any classes. If the apprentice is currently enrolled in a class they will be allowed to finish the class, but cannot enroll for the next round.
Third offense: If apprentice fails to report work hours for a third time in a 12-month period, apprenticeship will be cancelled permanently. The apprentice must re-apply to the program for the following year if they would like to continue.

APPRENTICE REVIEW POLICY:
Apprentice Reviews must be completed two times per year per Department of Labor requirements. The reviews are meant to evaluate the apprentice’s progression in manipulative skills, technical knowledge and to provide the Academy for Manufacturing Careers (AMC) with feedback on the program. The reviews need to include at least one complete sentence for each question. If there is an issue or concern with an instructor please include the instructor’s name so that the AMC can address the issue/concern. It is at the AMC’s discretion on whether or not to send a review back for lack of input/feedback on a review. The AMC will conduct one face-to-face review at the company site and one email review each year.

Face-to-Face Reviews
When scheduling the face-to-face review, AMC staff will contact the company via email and carbon copy all of the company’s active apprentices. Face-to-face reviews will be attended by an AMC staff person, the apprentice(s) and a company representative. The
company may invite others—such as an apprentice’s supervisor or a union representative—to attend face-to-face reviews.

It is important that all apprentices attend their scheduled face-to-face review meeting. If an apprentice is not available to attend his or her face-to-face review, regardless of reason, it is required that the AMC be notified by the company or the apprentice via phone, email or text message at least twenty-four (24) hours prior to the meeting date/time and the meeting must be rescheduled.

It is required that a company representative attend the face-to-face review meeting. AMC staff cannot conduct a review meeting for any of the company’s apprentices if no company representative is able to attend. In the event that no company representative is able to attend a previously scheduled face-to-face review meeting, it is required that the AMC be notified by the company via phone, email or text message at least twenty-four (24) hours prior to the meeting date/time and the review meeting must be rescheduled.

Failure on behalf of an apprentice or a company representative to show up for a scheduled face-to-face review will result in the following action(s):

First offense: A warning will be issued to the apprentice(s) and/or the employer who failed to attend. Failure to remedy the situation by contacting AMC staff to reschedule the face-to-face review at the company’s site within five (5) workdays from issuance of the warning will be treated as a second offense.

Second offense: The apprentice(s)/employer will be responsible for contacting AMC staff within five (5) workdays to schedule a review meeting at the AMC’s office. Please note that the apprentice(s) AND a company representative must travel to the AMC’s office and be present for the review meeting.

Third offense: The company’s participation in the AMC apprenticeship program will be cancelled permanently.

Email Reviews
AMC staff will send review documents via email individually to all of a company’s active apprentices and will carbon copy the company representative. These emails will include a deadline date for return of the completed review documents. It is important that the apprentice, the apprentice’s supervisor and whomever else the company would like involved sit down together to fill out the review documents and return them via email to the AMC by the deadline date provided. If an apprentice cannot meet the deadline, it is important that the apprentice or a company representative contact the AMC to make other arrangements.

Failure to submit completed review documents via email by the deadline will result in the following action(s):
First offense: A warning will be issued to the employer and to the apprentice(s) who failed to return their completed review documents. Failure to remedy the situation by submitting completed review documents via email within five (5) workdays from issuance of the warning will be treated as a second offense.

Second offense: The apprentice(s)/employer will be responsible for contacting AMC staff within five (5) workdays to schedule a face-to-face review meeting at the AMC’s office. Please note that the apprentice(s) AND a company representative must travel to the AMC’s office and be present for this review meeting.

Third offense: The company’s participation in the AMC apprenticeship program will be cancelled permanently.

CERTIFICATE PROGRAM PARTICIPANTS:
Upon completion of your training, job placement cannot and is not guaranteed. Job availability and job offers cannot be promised. There are many factors that need to be considered and we have no control on the factors that relate to job availability.

PLACEMENT ASSISTANCE:
The Academy does not offer direct placement services. The Academy works with South Central Michigan Works! (SCMW) for placement assistance of dislocated workers.

CREDIT FOR PRIOR LEARNING:
You may be able to get credit for previous education and learning. Credits awarded for prior learning are applicable when appropriate. Students may submit documentation to The Academy for review of courses that may be applied toward Academy requirements.

TRAINING LOCATIONS:
Courses will be provided at various locations within the tri-county area. The bulk of the skilled/technical trades courses will be provided via the Jackson Area Career Center, MWSE, Litchfield Regional Training Center and LISD TECH Center. Other locations may include Jackson College, MMTC, and Alro Processing Center. Training may be provided on-site at manufacturer’s facilities in some instances.

COMPLAINTS:
Students who wish to file a complaint with the State of Michigan may do so at www.michiganps.net

LEARNING METHOD:
Instructor-led, using a blended learning approach, with heavy emphasis on hands-on application of theory through hands-on labs whenever possible and applicable.

PRICING:
Most course fees are based upon the number of contact hours per course.
ASSOCIATE DEGREE:
The AMC does work with Baker College, Jackson College and Delta College for Associate Degrees. Please contact our office for more information.
The Academy for Manufacturing Careers Veteran Student Addendum

This catalog addendum applies to those students receiving U.S. Department of Veterans Affairs education (GI Bill) benefits while attending The Academy for Manufacturing Careers. Please acknowledge by your signature below that you have read and understand the information in this addendum, and have received and understand the policies, rules and regulations of The Academy for Manufacturing Careers.

Prior Credit Policy: Per, 38CFR 21.4253 (d)(3), previous training and experience will be considered, and granted if appropriate, for veterans and other eligible students.

Attendance Policy: Students are expected to attend all classes. If circumstances prevent attendance at a particular class, prior notification is expected in order to arrange make-up sessions. Students must maintain 100% attendance or VA benefits will be terminated. Students’ whose absences result from authorized mitigating circumstances, as determined by the school Director, will not be terminated. Students who have been terminated from the school for unsatisfactory attendance may be re-admitted at the discretion of the Director.

Conduct Policy: Students must conduct themselves in a respectable manner at all times. Disruptive or inappropriate behavior deemed unsatisfactory conduct by school officials will result in termination of veteran’s educational benefits, and possible dismissal from The Academy for Manufacturing Careers. Re-admittance after conduct dismissal requires reapplication to the school.

Academic Progress Policy: Students receiving VA education benefits must maintain a 2.00 grade point average on tests and in written practical exams, and satisfactory and timely completion of all assignments, reports, projects, etc. Failure to meet these criterions will result in being placed on probation. If the criterions are not met by the end of the probationary period, VA education benefits will be terminated. Certification to VA for payment will not be resumed until the student has returned to a satisfactory academic status.

Pro-Rata Refund Policy for Veterans and other Eligible Students: Per CFR 21.4255, The Academy for Manufacturing Careers, Inc. has a pro-rata refund policy for the refund of the unused portion of tuition, fees and other charges in the event the veteran or eligible person fails to enter the course, withdraws or is discontinued, at any time prior to completion.

Equal Opportunity Statement: The Academy for Manufacturing Careers does not discriminate on the basis of race, color, religion, sex, age, disability or national origin.

Program Completion: The student must satisfactorily complete the academic requirements of their chosen field and satisfy all financial obligations to receive a certificate.

Retention of Records: The Academy for Manufacturing Careers will retain records and accounts of students receiving VA Educational benefits for a period of three years following course completion. These records will be made available to the student upon request and certification.
Mission: To be a leader and partner in educating a skilled workforce for today and tomorrow's manufacturing community.

Vision: All manufacturers have the trained and skilled talent they need to succeed and grow.

Values: Partnership, Integrity, Success, Continuous Improvement
Mission: To be a leader and partner in educating a skilled workforce for today and tomorrow's manufacturing community.

Vision: All manufacturers have the trained and skilled talent they need to succeed and grow.

Values: Partnership, Integrity, Success, Continuous Improvement
## Skilled Trades Related Technical Instruction Apprenticeship Program

*Designed by Manufacturers to Meet the Needs of Jackson, Hillsdale, & Lenawee County Manufacturers*

### Course Matrix

#### Four-Year Apprenticeship Programs

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Tool &amp; Die Maker</th>
<th>CNC Machinist</th>
<th>Machine Repairer</th>
<th>Industrial Maintenance Mechanic</th>
<th>Welder</th>
<th>Mold Maker</th>
<th>Engineering Technician</th>
<th>Robotic Welding Tech</th>
<th>Quality Engineer</th>
<th>Prototype Technician</th>
<th>Electrical Technician</th>
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<td>Industrial Blueprint Reading</td>
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## Skilled Trades Related Technical Instruction Apprenticeship Program

**Designed by Manufacturers to Meet the Needs of Jackson, Hillsdale, & Lenawee County Manufacturers**

## Course Matrix

### Competency-Based, Hybrid & Shorter-Term Apprenticeship Programs

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Machine Builder</th>
<th>Manufacturing Production Technician</th>
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<td>Industrial Blueprint Reading</td>
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<td>Algebra</td>
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<td>Basic Industrial Electricity</td>
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Industrial Blueprint Reading – 2 credits - 32 hours
This course provides the understanding and interpretation of a variety of mechanical and electrical blueprints. Emphasis is placed on reading and interpreting blueprints found in a manufacturing environment. Student will gain the ability to recognize and identify symbols and specifications common to modern industrial blueprints. Topics include: lines and symbols, views, material, form and position, title blocks, sketching, features, and sections.

Basic Gauges & Measurement – 2 credits - 32 hours
Prerequisite: Industrial Blueprint Reading
This course covers use of calipers, micrometers, English and metric gauges and other measuring instruments within a manufacturing environment. Topics include: English vs. metric, calibration of instruments, importance of repeatability, hands-on measurement of piece work, and instrument inspection and care.

Machining Theory & Methods – 4 credits -64 hours
Prerequisite: Basic Gauges & Measurement
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.

Precision Machining Methods – 2 credits - 32 hours
Prerequisite: Machining Theory & Methods
This course covers the basics of precision machining operations utilizing a variety of machine tools and related equipment. Topics include: operation and use of drill presses, lathes, power saws, grinders, vertical and horizontal milling machines, and other basic machine tools; bench work (use of hand and power hack saws, deburring, shearing, filing, polishing, use of hand taps, and cutting threads with a die); safety; and good housekeeping.

CNC Mill Theory & Programming - 2 credits – 32 hours
Prerequisite: Precision Machining Methods
This course introduces the students to the theories and basic programming fundamentals of the Computerized Numerical Controlled Mill process.

CNC Lathe Theory & Programming – 2 credits – 32 hours
Prerequisite: CNC Mill Theory & Programming
This course introduces the students to the theories and basic programming fundamentals of the Computerized Numerical Controlled Lathe process.
Basic Gauges & Measurement – 2 credits - 32 hours
Prerequisite: Industrial Blueprint Reading
This course covers use of calipers, micrometers, English and metric gauges and other measuring instruments within a manufacturing environment. Topics include: English vs. metric, calibration of instruments, importance of repeatability, hands-on measurement of piece work, and instrument inspection and care.

Machine Maintenance & Troubleshooting – 3 credits – 48 hours
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.

Basic Industrial Electricity – 2 credits – 32 hours
This course is designed to give maintenance people a basic understanding of safely working with and around electricity in an industrial environment. The course topics include: electrical theory, power and control circuits, DC and AC, batteries' inductance, capacitance, transformers, measuring of circuits, lighting, machines, single and three phase motors, control circuits and components, and maintenance procedures.

Drive Components & Bearings – 2 credits – 32 hours
This course instructs students in the principles, applications, and maintenance of various types of bearings and mechanical couplings, including ball and roller, powdered metal, non-metallic, hydrostatic bearings; couplings: such as shear, torque limiting, floating and insulated, speed reducers, seals and gears.

Industrial Hydraulics & Pneumatics – 4 credits – 64 hours
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.
Industrial Blueprint Reading – 2 credits - 32 hours
This course provides the understanding and interpretation of a variety of mechanical and electrical blueprints. Emphasis is placed on reading and interpreting blueprints found in a manufacturing environment. Student will gain the ability to recognize and identify symbols and specifications common to modern industrial blueprints. Topics include: lines and symbols, views, material, form and position, title blocks, sketching, features, and sections.

Materials & Metallurgy – 2 credits – 32 hours
This course covers the student with a working knowledge of the properties, uses, and treatment methods used to alter the properties of commonly used metals and alloys. This knowledge may be applied to the design, selection, processing and testing of metal parts.

Welding I – 4 credits – 64 hours
This course covers basic theory and fundamental application of welding as required in the metal fabrication industry. The class includes: development of basic skills in preparation, welding and cutting of metal and provides hands-on experience within shielded metal arc welding and oxy-acetylene welding.

Welding II – 4 credits – 64 hours
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.

Welding III – 4 credits – 64 hours
Prerequisite: Welding II
This course covers basic theory and fundamental application of welding as required in the metal fabrication industry. Topics include: development of basic skills in preparation, welding and cutting of metal and provides hands-on experience within GMAW and GTAW, and various positions on aluminum and Stainless.
Industrial Blueprint Reading – 2 credits - 32 hours
This course provides the understanding and interpretation of a variety of mechanical and electrical blueprints. Emphasis is placed on reading and interpreting blueprints found in a manufacturing environment. Student will gain the ability to recognize and identify symbols and specifications common to modern industrial blueprints. Topics include: lines and symbols, views, material, form and position, title blocks, sketching, features, and sections.

Basic Gauges & Measurement – 2 credits - 32 hours
Prerequisite: Industrial Blueprint Reading
This course covers use of calipers, micrometers, English and metric gauges and other measuring instruments within a manufacturing environment. Topics include: English vs. metric, calibration of instruments, importance of repeatability, hands-on measurement of piece work, and instrument inspection and care.

Machining Theory & Methods – 4 credits - 64 hours
Prerequisite: Basic Gauges & Measurement
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.

Precision Machining Methods – 2 credits - 32 hours
Prerequisite: Machining Theory & Methods
This course covers the basics of precision machining operations utilizing a variety of machine tools and related equipment. Topics include: operation and use of drill presses, lathes, power saws, grinders, vertical and horizontal milling machines, and other basic machine tools; bench work (use of hand and power hack saws, deburring, shearing, filing, polishing, use of hand taps, and cutting threads with a die); safety; and good housekeeping.

Materials/Metallurgy – 2 credits - 32 hours
This course covers the structure, processing, and thermal/mechanical properties of metals, plastics/polymers and ceramics materials. Topics include: classification and properties of metals, synthesis and structure of polymers, chemical and heat treatment principles, corrosion avoidance, and selection of materials for particular applications.

Die Theory & Design - 3 credits -48 hours
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.
Industrial Blueprint Reading – 2 credits - 32 hours
This course provides the understanding and interpretation of a variety of mechanical and electrical blueprints. Emphasis is placed on reading and interpreting blueprints found in a manufacturing environment. Student will gain the ability to recognize and identify symbols and specifications common to modern industrial blueprints. Topics include: lines and symbols, views, material, form and position, title blocks, sketching, features, and sections.

Basic Gauges & Measurement – 2 credits - 32 hours
Prerequisite: Industrial Blueprint Reading
This course covers use of calipers, micrometers, English and metric gauges and other measuring instruments within a manufacturing environment. Topics include: English vs. metric, calibration of instruments, importance of repeatability, hands-on measurement of piece work, and instrument inspection and care.

Machining Theory & Methods – 2 credits - 32 hours
Prerequisite: Basic Gauges & Measurement
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.

Problem Solving – 0 credits - 8 hours
This class introduces participants to the problem solving basics and G8-D reporting methods. It covers the reasons for gathering data when you need to analyze a problem and introduces students to some of the basic tools of problem solving and how these tools are used. Tools covered include: cause & effect (fishbone) diagrams, SPC control charts, 5-why methods, brainstorming and scatter diagrams.

Basic Computers – 2 credits - 32 hours
This class provides students with hands-on experience in the basics of computer concepts ranging from Windows 7 to Microsoft Office, Excel, PowerPoint and Outlook.

Intermediate Blueprint Reading/GD&T– 2 credits - 32 hours
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.

Advanced Gauges & Measurement/Intro to CMM – 2 credits - 32 hours
AMC COURSES

CORE CURRICULUM

AUDIENCE: All individuals enrolled in the Apprenticeship Program, as well as individuals participating in the Academy for Manufacturing Careers high school and non-apprenticeship/pre-apprenticeship adult programs.

Basic Math
Prerequisite: AMC Math Assessment
This course consists of six modules covering the concepts of: whole numbers, fractions, decimals, ratios, percent’s, and the basic used of signed numbers, exponents, and order of operations.

Basic Computer Skills
This class provides students with hands-on experience in the basics of computer concepts ranging from Windows 7 to Microsoft Office, Excel, PowerPoint and Outlook.

Industrial Blueprint Reading
This course provides the understanding and interpretation of a variety of mechanical and electrical blueprints. Emphasis is placed on reading and interpreting blueprints found in a manufacturing environment. Student will gain the ability to recognize and identify symbols and specifications common to modern industrial blueprints. Topics include: lines and symbols, views, material, form and position, title blocks, sketching, features, and sections.

Introduction to CAD
Prerequisite: Basic Computer Skills
This course introduces students to computer aided drafting using AutoCAD.

Algebra
Prerequisite: Basic Math
This class provides the learner with a basis for working with handbook formulas as well as computations required for practical application of geometry and trigonometry problems. Students will use letters to represent unknown numbers to solve mathematical formulae.

Machining Theory & Methods
Prerequisite: Basic Gauges & Measurement
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.

Basic Gauges & Measurement
Prerequisite: Industrial Blueprint Reading
This course covers use of calipers, micrometers, English and metric gauges and other measuring instruments within a manufacturing environment. Topics include: English vs. metric, calibration of instruments, importance of repeatability, hands-on measurement of piece work, and instrument inspection and care.
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This course covers the structure, processing, and thermal/mechanical properties of metals, plastics/polymers and ceramics materials. Topics include: classification and properties of metals, synthesis and structure of polymers, chemical and heat treatment principles, corrosion avoidance, and selection of materials for particular applications.

Basic Industrial Electricity
Prerequisite: Industrial Blueprint Reading
This course is designed to give maintenance people a basic understanding of safely working with and around electricity in an industrial environment. The course topics include: electrical theory, power and control circuits, DC and AC, batteries' inductance, capacitance, transformers, measuring of circuits, lighting, machines, single and three phase motors, control circuits and components, and maintenance procedures.

Intro to Lean Theory
Prerequisite: Problem Solving
This course provides an understanding of the various tools: Takt time, Pitch Supermarkets, line Balancing, 5S, Total Productive Maintenance, Standardized Work, Heijunka-Level Loading.

Safety & First Aid
Safety and First Aid combines lectures, demonstrations and video with hands-on skills training and practice. Upon successful completion, participants earn Red Cross certification, the emergency-training credential accepted by OSHA and public safety agencies nationwide.

Problem Solving
This class introduces participants to the problem solving basics and G8-D reporting methods. It covers the reasons for gathering data when you need to analyze a problem and introduces students to some of the basic tools of problem solving and how these tools are used. Tools covered include: cause & effect (fishbone) diagrams, SPC control charts, 5-why methods, brainstorming and scatter diagrams.

Work/Life Skills
This course provides an examination in the role of communication to achieve organizational goals. Emphasis will be placed on business relationships, managerial styles and group interaction as components of organizational problem solving. Students will develop an ability to assess, select, compose, and evaluate messages exchanged within organizations, both oral and written.

SPECIALIZATION CURRICULUM

AUDIENCE: Individuals who have completed the RTI/Apprenticeship Program Core Curriculum and wish to continue their apprenticeship specialization.

Intermediate Blueprint Reading/GD&T
Prerequisite: Industrial Blueprint Reading & Basic Math
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 ASME Y 14.5-2009 standards.

**Geometry**

Prerequisite: Algebra

This class provides the student with the ability to analyze problems relating to engineering drawings. Geometry deals with measurements, relationships of points, lines and angles. Proficiency in geometry will aid in determining areas and volumes of circles, triangles and other common polygons.

**Trigonometry**

Prerequisite: Geometry

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**

Prerequisite: Machining Theory & 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**

Prerequisite: Industrial Blueprint Reading

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 I**

This course covers basic theory and fundamental application of welding as required in the metal fabrication industry. The class includes: development of basic skills in preparation, welding and cutting of metal and provides hands-on experience within shielded metal arc welding and oxy-acetylene welding.

**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.

**Welding III**

Prerequisite: Welding II

This course covers basic theory and fundamental application of welding as required in the metal fabrication industry. Topics include: development of basic skills in preparation, welding and cutting of metal and provides hands-on experience within GMAW and GTAW, and various positions on aluminum and Stainless.
Moldmaking
Prerequisite: Machining Theory & Methods
This course provides the basic fundamentals of mold design and construction.

Jig & Fixture Design
Prerequisite: Precision Machining
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.

Die Theory & Design
Prerequisite: Precision Machining
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.

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

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

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

Machine Maintenance & Troubleshooting
Prerequisite: Industrial Hydraulics & Pneumatics & Basic Industrial Electricity
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.

Basic PLC
Prerequisite: Basic Industrial Electricity
This course provides an overview of SLC and Micrologix hardware, communications, cabling, and system design. It introduces the student to RSLogix 500 and its features for ladder programming. This course also has instructor led labs that cover a variety of programming instructions used with SLC 500 and RSLogix 500 software, including examine on/off, output energize, latch and unlatch, timers, counters, math statements, comparisons, branching, etc.

Mission: To be a leader and partner in educating a skilled workforce for today and tomorrows manufacturing community.
Vision: All manufacturers have the trained and skilled talent they need to succeed and grow.
Values: Partnership, Integrity, Success, Continuous Improvement
Industrial Wiring
*Prerequisite: Basic Industrial Electricity*
This course covers practical applications of Industrial Electrical Wiring. The course will start with codes, standards, and electrical prints and move onto the safe use of hand tools and power tools used in the industry. Also, materials used in the industrial environment and how to determine correct wire size and voltage levels will be determined. Finally installation of equipment and repairs explored.

Drive Components & Bearings
This course instructs students in the principles, applications, and maintenance of various types of bearings and mechanical couplings, including ball and roller, powdered metal, non-metallic, hydrostatic bearings; couplings: such as shear, torque limiting, floating and insulated, speed reducers, seals and gears.

Robotics & Material Handling
This course provides an introduction to automated materials handling/production equipment and the role of the computer/robotics in modern manufacturing systems.

Electrical Troubleshooting
*Prerequisite: Industrial Wiring*
This course explores troubleshooting in various areas such as: control circuits, combinations starters, control devices, special controls, DC motors, lightning systems with use of schematics, building drawings, and with emphasis on cutting troubleshooting time.

**IN PARTNERSHIP WITH OTHER TRAINING INSTITUTIONS**

Electronics I
This course covers solid state elements of industrial control including triggering devices, computer control issues, photo-electronics, industrial applications of electronics and other control devices.

Intro to Digital Electronics
This course will provide the student the basic understanding and application of digital circuitry. Algebra and digital circuits will be stressed. These principles will be applied to understanding the concepts of microprocessors. The basic principles of microprocessors – architecture – architecture instruction set, arithmetic and logical operations, and read-only and read/write memory will be taught.

Industrial Motion Control
This course covers motion controls as used in real world situations, including PLC, robotics, servos, sensing devices, actuators and controls. Students will be exposed to a variety of industrial control concepts and devices used in manufacturing.

Electrical Motor Controls
Basic principles involved in the operation of motors and controls are explored. Study includes single-phase motors and their operating principles, polyphase systems and the various control devices used with these systems.
**SolidWorks Essentials**
Program teaches you how to use the SolidWorks mechanical design automation software to build parametric models of parts and assemblies, and how to make drawings of those parts and assemblies.

**Statistical Process Control**
Participants run a group of sequentially produced parts and then measure them to determine average, range and sigma. Control limits are calculated using these same parts and additional samples are measured and plotted to determine where the process is going and why. Interpretations of results are part of this course as well as capability study exercises.

**8-D Problem Solving**
This course teaches participants how to perform a fact-based investigation of problems more quickly and proficiently. By using a systematic approach to solving problems, root causes can be identified and eliminated.

**Design of Experiments**
The course focuses on the fundamentals of experimental design for variables (continuous) type data. Included are statistical tests for analyzing one, two and three or more treatments as well as multi-factor design.

**Core Tools**
This two-day interactive course will equip participants with the knowledge and skills needed to complete required areas of the organization’s APQP (Advanced Product Quality Planning) conformance. This includes the activities surrounding the FMEA (Failure Mode and Effects Analysis) process, as well as the applicable required activities and submissions involved in PPAP (Production Part Approval Process).

**Six Sigma Green Belt**
This course is designed to provide the learner the tools and application knowledge needed to assist Black Belts and to successfully complete a Six Sigma project. The course introduces the learner to the DMAIC process, the appropriate tools used in each process step, the application of those tools, and methods for evaluating remediation outcomes. Many “real world” examples are used throughout the course to illustrate how the Six Sigma methodology can be effectively applied to both manufacturing and transactional applications. Hands-on exercises, class discussion, and instructor on-site observations compliment classroom lecture and evaluation.

**Measurement Systems Analysis**
If measurements are used to guide decisions, then it follow logically that the more error there is in the measurements, the more error there will be in the decisions based on those measurements. The purpose of Measurement Systems Analysis is to qualify a measurement system for use by quantifying its accuracy, precision, and stability.

**Intro to Mini-Tab**
The course focuses on the fundamentals of MiniTab execution. Lecture is provided for each of the topics. This is followed by examples and then typically an exercise in which the participant applies what they just learned. At the conclusion of the class there is a final exercise that pulls from the topics presented during the workshop.
The latter exercise is conducted by pairing the participants and allowing them to participate in dialog as they work together to reach the solutions.

For more information regarding the Academy for Manufacturing Careers, please visit www.academy4mfgcareers.org or contact our office.

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