



***Metal Fabrication  
Program Guide***  
CIP Code # 48.0508 (2013)

<b>Standard Occupational Classifications</b>	<b>2015 Pennsylvania High Priority Occupations</b>
47-2211.00 Sheet Metal Workers 51-2041.00 Structural Metal Fabricators and Fitters 51-4031.00 Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic 51-4121.06 Welders, Cutters, and Welder Fitters 51-4122.00 Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	47-2211 Sheet Metal Workers <sup>3</sup> 47-2221 Structural Iron and Steel Workers <sup>3</sup> 51-4121 Welders, Cutters, Solderers & Brazers <sup>3</sup>
<b>Industry Accreditation</b>	<b>Student Certifications</b>
American Welding Society (AWS)	ECTS Program Completer or Participant Pennsylvania Skills Certificate AWS SENSE Entry-Level Welder CareerSafe 10-Hour OSHA Construction Industry Certificate

Key: <sup>1</sup>Statewide HPO      <sup>2</sup>Regional HPO      <sup>3</sup>Both Statewide and Regional HPO

For more information, go to: <http://online.onetcenter.org/find/family?f=17&g=Go>

## METAL FABRICATION

### Expected Characteristics and Traits for Success

Students entering this program should possess the following traits:

- Good attendance 95%
- Physically able to lift heavy objects
- Good hand-eye coordination
- Safety conscious – aware of your surroundings
- Able to sit or stand for long periods of time
- Able to work in odd positions for long periods of time

- Able to adhere to personal safety requirements: safety glasses, steel toed boots, long pants, no jewelry or loose fitting clothing
- Able to work safely around potentially dangerous situations such as intense light (arcs), noxious fumes, hot materials, and sharp objects
- Able to visualize abstract ideas
- Math skills algebra or better
- Non-impulsive behavior
- Self-starter who can work alone or with others and stay on task
- A good problem solver
- Good with hands-on work
- Able to communicate thoughts and ideas effectively
- Positive and energetic
- Dependable, honest and ethical
- Eager to please a supervisor/employer

### Student Supply Obligations Level 1 Costs are Estimated

3" binder,		\$7.00
12' tape measure,		\$3.00
12" Combination square		\$10.00
Steel toed boots,		\$30-\$200

Calculator,



\$1.00

Cotton type long pants



Old Jeans

### Student Supply Obligations Level 2 & 3

Side cutters or MIG pliers



**\$5.00**



**\$10.00**

## Metal Fabrication Planned Courses

<b>Content Area</b>	<b>Course Title</b>	<b>Course Number</b>	<b>Course Hours</b>
<b>00</b>	<b>Fundamentals</b>		
	Foundations of Metal Fabrication	MTF101	45
	Leadership	PFS109	7.5
		PFS110	7.5
	Total Quality Management	PFS209	7.5
		PFS211	7.5
	Business Principles	PFS309	7.5
		PFS310	7.5
<b>10</b>	<b>Tools and Equipment</b>		
	Tools & Equipment I	MTF111	30
	Tools & Equipment II	MTF112	30
	Power Tools and Machines	MTF211	30
<b>20</b>	<b>Principles of Measuring/Layout</b>		
	Measurement & Layout	MTF121	45
	Pattern Development I	MTF122	45
	Pattern Development II	MTF221	45
	Fabrication Design	MTF222	45
	Principles of Design for Specific Operations	MTF321	30
	Pattern Development III	MTF322	45
	Senior Project Development	MTF323	45
<b>30</b>	<b>Welding Processes</b>		
	Shielded Metal Arc Welding	MTF131	45
	Introduction to Oxyacetylene Cutting	MTF133	45
	Gas Metal Arc Welding I	MTF231	45
	Gas Metal Arc Welding II	MTF232	45
	Plasma Arc Cutting/Carbon Arc Cutting	MTF233	30
	Gas Tungsten Arc Welding I	MTF331	45
	Gas Tungsten Arc Welding II	MTF332	45
	Flux Core Arc Welding I	MTF333	30
	Flux Core Arc Welding II	MTF334	30
<b>40</b>	<b>Fabrication Projects</b>		
	Fabrication of Light Gauge Projects I	MTF141	45
	Fabrication of Light Gauge Projects II	MTF142	45
	Sheet Fabrication I	MTF241	45

	Sheet Fabrication II	MTF242	45
	Structural Fabrication	MTF243	45
	Bend Allowances	MTF244	30
	Advanced Fabrication	MTF341	45
	Senior Project Fabrication	MTF342	45
<b>50</b>	<b>Metallurgy</b>		
	Introduction to Metallurgy	MTF151	30
	Metal Characteristics & Properties	MTF351	45
<b>60</b>	<b>Fasteners</b>		
	Introduction to Fasteners	MTF161	30
<b>70</b>	<b>Blueprint Reading</b>		
	Intro to Blueprint Reading	MTF171	45
	Blueprint Reading II	MTF271	30
	Blueprint Reading III	MTF371	45
<b>80</b>	<b>Employability Skills</b>		
	Job Shadowing	MTF281	45
	Employment Skills	MTF381	30