

## WELDING/MAINTENANCE & FABRICATION

# About the Welding Maintenance and Fabrication Program

This industry recognized credential provides the skills necessary to entry-level employment in the field. All competencies apply to the welding technical diploma degree.

## PROGRAM OUTLINE

COURSE #	COURSE TITLE	CREDITS
1044210100	<p>Weld Symbols</p> <p>Students will develop print interpretation skills needed in metal fabrication. Learners study prints containing section views, detail views, and weld symbols. Learners apply concepts in hands-on activities, print interpretation skills, calculating dimensions, identifying and interpreting weld symbols.</p>	1.00
1044210300	<p>Print Reading</p> <p>Students will develop print interpretation skills needed in metal fabrication. Learners study orthographic projection, dimensioning, and bill of materials. Learners apply concepts in hands-on activities, practicing basic layout skills and safe operation of saws, shears and drills.</p>	3.00
1044215700	<p>Thermal Cutting</p> <p>Develops skill in thermal cutting and gouging processes. Learners practice manual and machine oxy-fuel cutting, plasma cutting and gouging and air carbon arc gouging. Prerequisite: 1044217200 Safety in Manufacturing (B or better).</p>	2.00
1044215800	<p>Shielded Metal Arc Welding on Carbon Steel</p> <p>Develop skills in shielded metal arc welding. Learners use 6010 and 7018 "stick" electrodes to complete fillet and groove welds in all positions. Weld quality is assessed per AWS D1.1 Structural Steel Code. Prerequisite: 1044217200 Safety in Manufacturing (B or better).</p>	2.00
1044215900	<p>Gas Metal Arc Welding on Carbon Steel</p> <p>Develop skills in gas metal arc welding. Learners use the "mig" process in all positions on carbon steel. Required welds include fillet and groove welds with short circuit, spray and pulsed spray transfer. Weld quality is assessed per AWS D1.1 Structural Steel Code. Prerequisite: 1044217200 Safety in Manufacturing (B or better).</p>	3.00
1044216300	<p>Weld Inspection and Testing</p> <p>Emphasizes measurement of weld defects and assessment of weld quality conformance to common welding codes. Learners conduct etch tests, bend tests and break tests on welds. The process of procedure and welder qualification is explored through group activities.</p>	1.00
1044217200	<p>Safety in Manufacturing</p> <p>Prepares learners for safe operation of work site equipment. Procedures regarding welding machines, band saws, shears, drill presses, punches, grinders, oxy fuel equipment and an array of hand tools are practiced. Crane and forklift operation are introduced.</p>	1.00
3180430200	<p>Applied Technical Mathematics</p>	2.00

COURSE #	COURSE TITLE	CREDITS
	Develops skills in using mathematics principles, essential to the technical service and production workplace, through applied learning contexts. Content includes whole numbers, fractions, percent, graphs, fundamentals of algebra, geometry and trigonometry, and tools and techniques for precision measurement. Prerequisite: Accuplacer Arithmetic score $\geq 61$ or TABE Math Composite score $\geq 10$ or ACT Mathematics score $\geq 17$ .	
<b>Competencies</b>		
1080410700	College Mathematics  Designed to review and develop fundamental concepts of mathematics pertinent to the areas of arithmetic and algebra, geometry and trigonometry, probability and statistics. Special emphasis is placed on problem solving, critical thinking and logical reasoning, making connections, and using calculators. Topics include performing arithmetic operations and simplifying algebraic expressions, solving linear equations and inequalities in one variable, solving proportions and incorporating percent applications, manipulating formulas, solving and graphing systems of linear equations and inequalities in two variables, finding areas and volumes of geometric figures, applying similar and congruent triangles, converting measurement within and between U.S. and metric systems, applying the Pythagorean Theorem, solving right and oblique triangles, calculating probabilities, organizing data and interpreting charts, calculating central and spread measures, and summarizing and analyzing data. Recommended: pre-algebra or appropriate placement scores. Prerequisite: Accuplacer Algebra score $\geq 35$ or ACT Mathematics score $\geq 18$ .	3.00
31804302C01	Geometry Skills  Develops skills in using mathematics principles, essential to the technical service and production workplace, through applied learning contexts. Content includes geometry and trigonometry, and tools and techniques for precision measurement. Corequisite: 10442112C02 Print Reading and Sketching.	1.00
31804302C02	Math Skills  Develops skills in using mathematics principles, essential to the technical service and production workplace, through applied learning contexts. Content includes whole numbers, fractions, percent, graphs, and fundamentals of algebra. Corequisite: 10442112C02 Print Reading and Sketching.	1.00

**Total Credits:**

**15.00**

Talk with an Academic Advisor about the program outline. Together, you will determine if credits you've already earned satisfy any requirements, discuss possible alternative courses, and choose the best classes if you're thinking of transferring.

## AT A GLANCE

### How You'll Learn



ON CAMPUS ONLINE CLASSES MULTIPLE START DATES FLEXIBLE PACE

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## 2021 Start Dates

January 6	May 7	September 1
February 1	June 7	October 4
March 1	July 5	November 1

## 2022 Start Dates

January 5	March 1	June 6
February 7	May 2	July 11

[VIEW FULL ACADEMIC CALENDAR](#)

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## What is Competency-Based Education?

Competency-Based Education (CBE) is learning at your own pace by mastering competencies through demonstration. Once all competencies for a program have been assessed and mastered, students will earn a certificate, diploma, or degree.

[LEARN MORE ABOUT CBE](#)

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## Approximate Cost

**\$2,856\***

\*Based on 10-level courses—materials, books, and fees may be additional

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## Student Equipment

Students are required to purchase welding kits through the college bookstore or obtain the minimum tools and equipment listed to be able to successfully complete coursework and performance assessments in the welding lab.

- Safety glasses
- Welders gloves MIG and TIG
- Chipping hammer
- Welding beanie
- 8-way welder pliers
- Soapstone holder
- Triple flint spark lighter
- Tape measure
- Weld fillet gauge
- Mag tool
- Material handling gloves
- Backhand pad
- Tool bag
- Welder pencils
- Auto darkening helmet
- Lens cover
- Welding jacket

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## What You'll Learn

- Demonstrate industry-recognized safety practices
- Produce Gas Metal Arc Welds (GMAW)
- Produce shielded metal arc welds (SMAW)
- Perform cutting operations

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## Your Potential Careers

- Welder
- Cutter
- Solderer
- Brazer

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## Median Annual Salary

\$39,106	\$42,134	\$40,889
Local	State	National

EMSI 2020.1

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## Get Started

Your application can be submitted online, it takes just a few minutes to complete.

[APPLY NOW](#)