

# WELDING (442)

## 442-100 - Welding Internship

144 hour on the job training paid internship for students participating in Welding boot camp. Interns are hired by companies as probationary employees during the boot camp training period with the goal of placing all candidates who successfully complete the program into regular full-time employment.

2 Credit hours

144 Other hours

## 442-120 - Robotic Welding

Emphasizes the application of welding automation in a production manufacturing environment. Focuses on automation safety, coordinate motion, creating and editing programs, creating tool centerpoints, and preventative maintenance. Provides hands-on experience with creating teach pendant programs. (Prerequisite: 442-109 Welding for Fabricators or 442-308 Introduction to Welding Process, Part B or 442-309 Introduction to Welding Processes or 442-357 Gas Metal Arc Welding 1)

3 Credit hours

18 Lecture hours

72 Lab hours

## 442-314 - Basic Welding 1

Acquire a brief overview of the welding processes most widely used that include gas metal arc welding, shielded metal arc welding and gas tungsten arc welding processes.

1 Credit hours

9 Lecture hours

27 Lab hours

## 442-317 - Basic Welding 2

Advance the skills learned in 442-314 Basic Welding 1. Learn more about gas metal arc welding, shielded metal arc welding and gas tungsten arc welding. Students may receive an in-depth focus on one specific process. (Prerequisite: 442-314 Basic Welding 1)

1 Credit hours

9 Lecture hours

27 Lab hours

## 442-331 - Welding Print Reading

Gives welders a basic knowledge about the interpretation of drawings and manuals of the sort most frequently encountered in industry. Includes arrangement of views, dimensions and notes, sections, shop sketching, welding symbols, and various welding prints used in the industry. Recommend completion of 103-159 Computer Literacy - Microsoft Office; 890-101 College 101.

2 Credit hours

72 Lecture hours

## 442-337 - Welding Theory and Safety

Provides instruction in welding and industrial safety. Students will identify environmental work and personnel hazards common with the industry and proper personal protection equipment. Students will learn welding theory associated with the GMAW, SMAW, FCAW, and GTAW welding processes as well as maintenance and care of welding power supplies and other related equipment.

1 Credit hours

36 Lecture hours

## 442-338 - Cutting Processes

Introduction to the necessary safety and set up of welding equipment and welding equipment maintenance. Focuses on developing skills in cutting processes using oxy-fuel and plasma cutting equipment. Students will use cutting process skills to cut Ferrous and Non Ferrous materials used in a variety of industrial applications. Students perform set up and cutting operations with manual equipment in a lab setting.

1 Credit hours

18 Lecture hours

18 Lab hours

## 442-356 - Shielded Metal Arc Welding (SMAW)

Introduction to the necessary safety and set up of welding equipment and welding equipment maintenance. Designed to provide students with basic Shielded Metal Arc Welding (SMAW) skills and a theoretical understanding of the process. Learning activities will focus on equipment set-up and adjustment, electrode identification, weld quality and techniques to improve welding skills safely. Shielded Metal Arc Welding skills are developed by performing a variety of weld joints in the flat, horizontal and vertical positions on low carbon steel.

2 Credit hours

18 Lecture hours

54 Lab hours

## 442-357 - Gas Metal Arc Welding 1 (GMAW)

Introduction to the necessary safety and set up of welding equipment and welding equipment maintenance. Introduction to welding terminology. Demonstrate safe shop work practices; set up and shut down of GMAW equipment and welding mild steel in the flat, horizontal, and vertical down positions.

2 Credit hours

18 Lecture hours

54 Lab hours

## 442-358 - Gas Metal Arc Welding 2 (GMAW)

Introduces out of position fillet and groove welding in the horizontal, vertical up and overhead positions. Students will learn and demonstrate practices for the set up and performance of out of position welding on various thickness of material. Students will demonstrate welding safety and good housekeeping practices. (Prerequisite: 442-357 Gas Metal Arc Welding 1 (GMAW 1))

2 Credit hours

18 Lecture hours

54 Lab hours

## 442-359 - Flux Core Arc Welding (FCAW)

Introduction to the necessary safety and set up of welding equipment and welding equipment maintenance. Focuses on developing welding skills using Flux Core Arc Welding (FCAW). Students use welding skills in a variety of industrial applications on carbon steel plates by welding in the flat, horizontal and vertical positions along with multiple passes on 1/4" to 1" thick material. Students perform welding operations in a lab setting.

2 Credit hours

18 Lecture hours

54 Lab hours

**442-365 - Welding for Gas Utility Construction**

Provides skill in Shielded Metal Arc Welding (SMAW), and Gas Metal Arc Welding (GMAW) in the flat and horizontal positions on carbon steel plate and pipe. Familiarization with pipe welding will be covered. Students apply safe welding standards to a variety of industrial applications. Students will demonstrate competence to set up equipment for the given cutting and welding process. Students will demonstrate the techniques required to perform welding acceptable to industrial standards. In addition, students will demonstrate Career and Life Skills, or soft skills required in an industrial setting for the duration of the course. (Prerequisite: 469-311 Gas Utility Field Training 1)

2 Credit hours

36 Lecture hours

36 Lab hours

**442-370 - Introduction to Robotic Welding**

Emphasizes the application of welding automation in a production manufacturing environment. Focuses on automation safety, coordinate motion, creating and editing programs, creating tool centerpoints, and preventative maintenance. Provides hands-on experience with creating teach pendant programs. (Prerequisite: Completion of or concurrent enrollment in 442-357 Gas Metal Arc Welding 1)

2 Credit hours

18 Lecture hours

54 Lab hours

**442-386 - Gas Tungsten Arc Welding 1 (GTAW)**

Introduction to the necessary safety and set up of welding equipment and welding equipment maintenance. Introduces Gas Tungsten Arc Welding (GTAW) skills on mild steel and stainless steel in the flat and horizontal positions. Students learn safety, welding terminology, setup and operation of welding equipment. Welding operations are performed in a lab setting on a variety of materials.

2 Credit hours

18 Lecture hours

54 Lab hours

**442-387 - Gas Tungsten Arc Welding 2 (GTAW)**

Introduces advanced Gas Tungsten Arc Welding skills on mild steel, aluminum and stainless steel in the horizontal, vertical up and overhead positions. Welding operations are performed in a lab setting on a variety of materials. Students will demonstrate welding safety and good housekeeping practices. (Prerequisite: 442-386 Gas Tungsten Arc Welding 1 (GTAW 1))

2 Credit hours

18 Lecture hours

54 Lab hours

**442-392 - Advanced Welding and Metals**

Focuses on advanced welding methods and processes involved in manufacturing. Builds on maintaining safety skills appropriate to a welding shop environment and skills acquired in prerequisite courses. Students perform welding operations on carbon steel, stainless steel, and aluminum in practical, real-world situations. Welding codes are introduced; welds are performed according to code criteria. Students will research various industries and career paths welding has to offer. (Prerequisites: 442-338 Cutting Processes; 442-356 Shielded Metal Arc Welding (SMAW); 442-358 Gas Metal Arc Welding 2 (GMAW 2); 442-359 Flux Core Arc Welding (FCAW); 442-387 Gas Tungsten Arc Welding 2 (GTAW 2); 890-101 College 101; Completion of or concurrent enrollment in 457-345 Metal Fabrication)

2 Credit hours

18 Lecture hours

54 Lab hours