South Central College

WELD 1055 Cutting and Brazing

Course Outcome Summary

Course Information

Description An introduction to brazing and cutting safety with oxy-fuel and plasma equipment and supplies. Students will demonstrate correct procedures for using oxy-fuel equipment for cutting, brazing, and welding. Plasma cutting systems will also be utilized for cutting bends for weld coupons, cutting heavy plate, and cutting non-ferrous metals. Cutting will be done by hand, as well as track cutting, and rotating positioning equipment. (Prerequisite: None)

Total Credits 3

Total Hours 80

Types of Instruction

Instruction Type	Credits/Hours
Lecture	1 / 16
Lab	2 / 64

Pre/Corequisites

None

Institutional Core Competencies

Critical and Creative Thinking - Students will be able to demonstrate purposeful thinking with the goal of using a creative process for developing and building upon ideas and/or the goal of using a critical process for the analyzing and evaluating of ideas.

Course Competencies

1. Explain fundamentals related to oxy-fuel welding and cutting.

Learning Objectives
List the most common fuel gasses and their properties.
Classify fuels and filler metals.
Describe ferrous and nonferrous metals.

2. Describe equipment involved in oxy-fuel and plasma processes.

Learning Objectives
List and label parts of Oxygen and Acetylene regulators.

Differentiate injection and equal pressure oxygen fuel (OF) torch operation.
Discuss the system used to classify OF cutting and welding tips.
Identify the gasses involved with the creation of plasma.

3. Describe the components of brazing and cutting systems.

Learning Objectives
Identify procedures for selecting appropriate fuels and materials.
Compare and contrast automated and manual processes in OF cutting and welding.
Describe what plasma is and how it is utilized in cutting

4. Practice general safety in a lab setting.

Learning Objectives
Locate eye protection, eye wash, and emergency power kill switch.
Operate tools safely.

5. Demonstrate safety specific to oxy-fuel welding procedures.

Learning Objectives
Describe the proper pre-use safety inspection of equipment.
Identify safety standards regarding thermal cutting and gouging.
Discuss the safe use and storage of high pressure and fuel gas cylinders.

6. Identify materials needed to perform brazing and cutting tasks.

Learning Objectives
Select proper oxygen fuel welding and cutting tips.
Identify proper welding consumables and fluxes for a selected process.

7. Determine an effective work plan to accomplish a given oxy-fuel welding assignment.

Learning Objectives
Select from multiple general weld joint configurations.
Choose the proper cutting process for various ferrous and non-ferrous materials.
Explain rationale for how and why a specific process was chosen.

8. Use equipment effectively to perform a given welding task.

Learning Objectives
Describe the proper set up of oxy-fuel equipment.
Set up oxy-fuel equipment as required to complete welding tasks.
Apply proper equipment settings and programs to weld on specific base metals.

9. Perform manual and machine cutting using various welding equipment.

Learning Objectives
Demonstrate manual cutting and beveling of mild steel plate and structural shapes.
Practice oxy-fuel machine cutting of plate.
Demonstrate oxy-fuel gouging and backing strip removal.
Operate wire and arc welders and oxyacetylene cutting torch.
Perform the proper steps in welding a multiple pass weldment.
Demonstrate the ability to set up and run a plasma cutter to cut a variety of ferrous and non-ferrous metals
Remove broken off hardware.
Demonstrate the ability to disassemble and reassemble the plasma cutting head and identify consumables
Demonstrate the ability to gouge and back-gouge V-grooves on mild steel plates

SCC Accessibility Statement

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