

# WELDING TECHNOLOGY (WELD)

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## **WELD1110 | Introduction to Welding Lab | Laboratory (5 Credits)**

Perform welding of standard joint designs on various thicknesses of steel plate. Practice oxyacetylene welding and cutting (OAW), stick welding (SMAW), and wire feed welding (GMAW). Introduction to tungsten inert gas (TIG) welding. Demonstrate shop safety, setup and troubleshooting of welding equipment and applications.

**Corequisite(s):** WELD1120 WELD1130

## **WELD1120 | Introduction to Welding Theory | Lecture (4 Credits)**

Identification, recognition and calculations associated with weld joint designs and weld materials. Examine various weld processes: oxyacetylene welding and cutting (OAW), stick welding (SMAW), wire feed welding (GMAW). Introduction to tungsten inert gas (TIG) welding. Examine shop safety, setup and troubleshooting of welding equipment and applications.

**Corequisite(s):** WELD1110 WELD1130

## **WELD1130 | Welding Math, Prints & Symbols | Lecture (4 Credits)**

Principles of weld print reading, measuring systems, decimal/fraction conversions, dimensioning, layout, orthographic views, technical math, and section views.

**Corequisite(s):** WELD1110 WELD1120

## **WELD1210 | Advanced Welding Lab | Laboratory (5 Credits)**

Practice welding of steel plate and aluminum alloys using stick welding (SMAW), wire feed welding (GMAW) and tungsten inert gas (TIG) welding. Demonstrate shop safety, grinding, finishing, and cutting practices in a final fabrication project.

**Prerequisite(s):** WELD1110

## **WELD1220 | Advanced Welding Theory | Lecture (4 Credits)**

Identification, recognition and calculations associated with weld joint designs, weld gasses, and metallurgy. Examine various weld processes including oxyacetylene welding and cutting (OAW), stick welding (SMAW), wire feed welding (GMAW), and tungsten inert gas (TIG) welding. Examine shop safety, setup and troubleshooting of welding equipment and applications.

**Prerequisite(s):** WELD1120

## **WELD2210 | Welding & Metal Fabrication Lab | Laboratory (5 Credits)**

The identification, maintenance and setup of welding and fabrication tools to perform layout, fixturing, forming, cutting and finishing of real-world weldments and assemblies. Utilize all aspects of prior coursework to design and build projects using multiple tools.

**Prerequisite(s):** WELD1210

## **WELD2220 | Weld/Metal Fab Thry | Lecture (4 Credits)**

Identification, recognition and calculations associated with the layout, fixturing, forming, cutting and finishing of real-world weldments and assemblies. Utilize all aspects of prior coursework to design and build projects using multiple tools.

**Prerequisite(s):** WELD1220

## **WELD2221 | Weld Fabrication & Production | Lecture (8 Credits)**

Identification, recognition, and calculations associated with the layout, fixturing, forming, cutting, and finishing of real-world weldments and assemblies. Explore optimal production, project management techniques, and principles of lean manufacturing. Study the properties of metals and how these properties are affected by the heat of welding, brazing, and hard surfacing.

## **WELD2230 | Welding Production & Safety | Lecture (2 Credits)**

Introduction to the best practices used in the welding industry to support optimal production and personnel safety. Explore industry-standard safety requirements, project management techniques, and principles of lean manufacturing.

**Prerequisite(s):** WELD1220

## **WELD2240 | Metallurgy & Weldability | Lecture (2 Credits)**

Identification, recognition and calculations associated with the study of the structure and properties of metals and how these properties are affected by the heat of welding, brazing, and hard surfacing.

**Prerequisite(s):** WELD1220