

# WELDING (WLD)

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## WLD 1000 – Weld Joint Design and Preparation

### 3 Credit hours

Introduces students to the field of welding. This course is broken into three modules. It is competency based and each module must be completed before continuing on to the next. Module 1 (Safety and Joint Design) covers safety rules for the welding lab and issues such as dealing with ultraviolet rays, burns, fumes, and electrical hazards. Introduces the print symbols and terminology used in fabricating and welding basic joints that are commonly seen on blueprints. Module 2 (Welding Code/Weld Measurement/Hand Tools) introduces welding codes and standards, identification of welding flaws, and the tools used to measure aspects of the weld. Emphasizes safety protocols and proper usage of hand tools in a welding lab. Module 3 (Material Cutting/Grinding/Fabrication) explores the set-up and use of the Oxy/Fuel cutting torch, the Oxy/Fuel line cutter, Plasma Arc cutting, safety protocols, and proper use of power tools in the welding lab. Also explores how to assemble various weld joints.

## WLD 1100 – Shielded Metal Arc Welding

### 3 Credit hours

Introduces students to shielded metal arc welding. This course is broken into three modules. It is competency based and each module must be completed before continuing on to the next. Module 1 (Flat and Horizontal Welding) examines the theory and practical operation of shielded metal arc welding in both a flat and horizontal welding position. Emphasizes safety protocols, machine settings, and filler metals. Module 2 (Vertical Welding) explores the theory and operation of shielded metal arc welding in a vertical welding position. Module 3 (Overhead Welding) discusses theory and operation of shielded metal arc welding. Emphasizes safety protocols and working specifically in the overhead welding position.

**Corequisites:** WLD 1000.

## WLD 1200 – Gas Tungsten Arc Welding

### 3 Credit hours

Introduces students to gas tungsten arc welding. This course is broken into three modules. It is competency based and each module must be completed before continuing on to the next. Module 1 (Safety and Technology) covers theory and operation of gas tungsten arc welding equipment. Emphasizes safety protocols, machine settings, and filler metals. Module 2 (Steel and Stainless Steel-Flat and Horizontal) discusses theory and operation of gas tungsten arc welding. Emphasizes safety protocols, and flat and horizontal welding positions while using mild and stainless steel. Module 3 (Steel and Stainless Steel-Vertical) covers theory and operation of gas tungsten arc welding. Emphasizes proper safety protocols and vertical welding position using mild steel and stainless steel.

**Corequisites:** WLD 1100.

## WLD 1300 – Gas Metal Arc Welding

### 3 Credit hours

Introduces students to gas metal arc welding. This course is broken into two modules. It is competency based and each module must be completed before continuing on to the next. Module 1 (Flat and Horizontal) covers theory, machine settings, filler metals, and operation of gas metal arc welding. Emphasizes safety protocols, flat welding position, and horizontal welding position using mild steel. Module 2 (Vertical and Overhead Welding) presents the theory and operation of gas metal arc welding. Emphasizes safety protocols, and proper vertical welding and overhead welding positions using mild steel and aluminum.

**Prerequisites:** WLD 1000.

## WLD 1400 – Welding Metallurgy

### 3 Credit hours

Introduces students to basic metallurgy principles pertaining to the field of welding. In this course students examine the basic metallurgical properties of steel and the changes that take place during cutting and welding operations. Students develop an understanding of the problems associated with these changes and strategies on how to avoid or minimize their adverse effects. In addition, various weld defects and faults which can occur in the shop floor environment are examined. Additional topics including heat treatment, stress relief and distortion are discussed in depth.

## WLD 2300 – Shielded Metal Arc Welding AWS Certification

### 2 Credit hours

Examines the theory and practical operation of shielded metal arc welding in both a flat and horizontal welding position. Emphasizes safety protocols, machine settings, and filler metals. Provides students with directed practice required to pass the American Welding Society certification in shielded metal arc welding.

**Prerequisites:** WLD 1000, WLD 1100, WLD 1400.

## WLD 2400 – Gas Tungsten Arc Welding AWS Certification

### 2 Credit hours

Discusses theory and operation of gas tungsten arc welding. Emphasizes safety protocols, and flat and horizontal welding positions while using mild and stainless steel. Provides students with directed practice required to pass the American Welding Society certification gas tungsten arc welding.

**Prerequisites:** WLD 1000, WLD 1200, WLD 1400.

## WLD 2500 – Gas Metal Arc Welding AWS Certification

### 2 Credit hours

Covers theory, machine settings, filler metals, and operation of gas metal arc welding. Emphasizes safety protocols, flat welding position, and horizontal welding position using mild steel. Provides students with directed practice required to pass the American Welding Society certification in gas metal arc welding.

**Prerequisites:** WLD 1000, WLD 1300, WLD 1400.