

# COURSE SYLLABUS

## WELDING

### Course Description:

This course is designed to provide the Iron Worker student with training in oxyfuel gas cutting, shielded metal arc, flux cored arc, and gas tungsten arc welding processes.

### Course Objective:

The objective of this course is to enable a student to weld using oxyfuel gas cutting, shielded metal arc, flux cored arc and gas tungsten arc welding processes.

### Learning Outcomes:

Upon successful completion of this course, the student will be able to:

- Weld and cut using oxyacetylene.
- Weld using the shielded metal arc welding process.
- Weld using the flux cored arc welding process.
- Weld using the gas tungsten arc welding process.

### Target Audience:

This course is mandatory for all apprentices and open to Journeymen.

### Length of Course:

This course is designed to be offered during a total of 110 hours – 30 hours of classroom instruction and 80 hours of hands-on lab or shop training.

### Course Materials:

- **Introduction to Welding** Reference Manual
- **Oxyfuel Gas Cutting and Welding** Reference Manual
- **Shielded Metal Arc Welding** Reference Manual
- **Flux Cored Arc Welding** Reference Manual
- **Gas Tungsten Arc Welding** Reference Manual
- **Welding for Ironworkers** Instructor Guide (for instructors only)
- **Welding for Ironworkers** DVD
- **Welding for Ironworkers** Student Workbook
- **Assignment Sheets** (in the Student Workbook)
- **Job Sheets** (in the Student Workbook)
- **Tests** (in the Instructor Guide)

## **A Word about Safety**

The importance of safety will be addressed and reinforced in all hands-on activities in the classroom, in the shop, and on the job site.

## **Course Assignments:**

There will be classroom and outside reading assignments. Students will complete these assignments prior to and/or during class as determined by the instructor. Job sheets will be completed as part of each unit in the welding lab or shop.

### **Course Grading Criteria:**

To successfully complete this course, the student must complete all of the assignments, demonstrate the required skills in the lab or shop, and pass the knowledge tests.

### **Course Attendance:**

All course sessions are mandatory and while missed time can be made up, missing a course session will affect your ability to successfully complete this course. Speak with the instructor to arrange make-up time if necessary.

### **Course Schedule:**

NOTE: The following Course Schedule is set up for blocks or classes 3 hours in length. If your course sessions are more or less than 3 hours, you will need to adjust the number of sessions accordingly.

<b>Date</b>	<b>Topics/Activities</b>
Session 1	Introductions Review of the course syllabus including the course objectives Discussion of classroom and outside assignments Tour of the welding shop Lecture and discussion – introduction to welding
Session 2	Lecture and discussion – oxyfuel welding and cutting
Session 3	Demonstration of oxyfuel welding and cutting Practice with oxyfuel welding and cutting
Session 4	Test – oxyfuel welding and cutting Lecture and discussion – shielded metal arc welding
Session 5	Lecture and discussion – shielded metal arc welding
Session 6	Lecture and discussion – shielded metal arc welding
Session 7	Demonstration of shielded metal arc welding Practice with shielded metal arc welding to weld stringer beads, building a pad, butt weld, fillet weld, groove weld and others as necessary in all four positions.
Session 8	Practice with shielded metal arc welding Testing of welding skills when students are ready

- Session 9 Practice with shielded metal arc welding  
Testing of welding skills when students are ready
- Session 10 Practice with shielded metal arc welding  
Testing of welding skills when students are ready
- Session 11 Practice with shielded metal arc welding  
Testing of welding skills when students are ready
- Session 12 Practice with shielded metal arc welding  
Testing of welding skills when students are ready
- Session 13 Practice with shielded metal arc welding  
Testing of welding skills when students are ready
- Session 14 Practice with shielded metal arc welding  
Testing of welding skills when students are ready
- Session 15 Practice with shielded metal arc welding  
Testing of welding skills when students are ready
- Session 16 Test – shielded metal arc welding  
Practice with shielded metal arc welding  
Testing of welding skills when students are ready
- Session 17 Lecture and discussion – flux cored arc welding
- Session 18 Lecture and discussion – flux cored arc welding
- Session 19 Lecture and discussion – flux cored arc welding
- Session 20 Demonstration of flux cored arc welding  
Practice with flux core arc welding to weld stringer beads, building a pad, butt weld, fillet weld, groove weld and others as necessary in all four positions.
- Session 21 Practice with flux cored arc welding  
Testing of welding skills when students are ready
- Session 22 Practice with flux cored arc welding  
Testing of welding skills when students are ready
- Session 23 Practice with flux cored arc welding  
Testing of welding skills when students are ready

- Session 24 Practice with flux cored arc welding  
Testing of welding skills when students are ready
- Session 25 Practice with flux cored arc welding  
Testing of welding skills when students are ready
- Session 26 Practice with flux cored arc welding  
Testing of welding skills when students are ready
- Session 27 Practice with flux cored arc welding  
Testing of welding skills when students are ready
- Session 28 Practice with flux cored arc welding  
Testing of welding skills when students are ready
- Session 29 Test – flux cored arc welding  
Practice with flux cored arc welding  
Testing of welding skills when students are ready
- Session 30 Lecture and discussion – gas tungsten arc welding
- Session 31 Lecture and discussion – gas tungsten arc welding
- Session 32 Lecture and discussion – gas tungsten arc welding
- Session 33 Demonstration of gas tungsten arc welding  
Practice with gas tungsten arc welding to weld stringer beads,  
building a pad, butt weld, fillet weld, groove weld and others as  
necessary in all four positions.
- Session 34 Practice with gas tungsten arc welding  
Testing of welding skills when students are ready
- Session 35 Practice with gas tungsten arc welding  
Testing of welding skills when students are ready
- Session 36 Practice with gas tungsten arc welding  
Testing of welding skills when students are ready
- Session 37 Test – gas tungsten arc welding  
Course summary