



# **ILLINOIS VALLEY COMMUNITY COLLEGE**

## **COURSE OUTLINE**

**DIVISION:** Workforce Development

**COURSE:** WSP 1212 GMAW Non-Ferrous Alloys, All Positions

Date: Spring 2022

Credit Hours: 2

Prerequisite(s): Approval from Program Coordinator

Delivery Method:

<input checked="" type="checkbox"/> Lecture	1 Contact Hours (1 contact = 1 credit hour)
<input type="checkbox"/> Seminar	0 Contact Hours (1 contact = 1 credit hour)
<input checked="" type="checkbox"/> Lab	2 Contact Hours (2-3 contact = 1 credit hour)
<input type="checkbox"/> Clinical	0 Contact Hours (3 contact = 1 credit hour)
<input type="checkbox"/> Online	
<input type="checkbox"/> Blended	
<input type="checkbox"/> VCM	

Offered:  Fall  Spring  Summer

### **CATALOG DESCRIPTION and IAI NUMBER (if applicable):**

In this course, the theory and practice in the preparation and welding of non-ferrous (aluminum) plate, in all positions, using the Gas metal Arc Welding (MIG) process are explored. Safety, equipment components, nozzle set-up, travel direction, torch angles, weave and stringer techniques will be stressed. Joints are prepared and welded in accordance with AWS standards used in industry and construction. All position welds are accomplished on the appropriate plate and tests will be given according to AWS criteria. AWS testing procedures will be performed and completed according to ANSI / AWS D1.2 Aluminum Welding Code.

## **COURSE TOPICS AND CONTENT REQUIREMENTS:**

Shop safety  
Basic Print reading  
Welding joints positions and symbols  
Power sources, wire feeders for GMAW  
Shielding gasses used in GMAW  
GMAW electrode classification  
PPE requirements  
GMAW welding principles  
GMAW metal transfer  
GMAW welding techniques  
GMAW Special non-ferrous welding applications

## **INSTRUCTIONAL METHODS:**

Classroom lecture, weld lab hands-on instruction

## **EVALUATION OF STUDENT ACHIEVEMENT:**

1. Read all material before coming to class
2. Participate in classroom and lab discussions and lectures.
3. Attend all class and lab sessions
4. Complete all required assignments, exercises, tasks, quizzes and tests.
5. Self-asses welds, maximize lab time.

## **INSTRUCTIONAL MATERIALS:**

### **Textbooks**

Modern Welding textbook and workbook, G-W, 12th edition

### **Resources**

Blackboard Publisher content available  
Videos  
Handouts  
Lincoln Electric Welding technology center  
Hobart institute of Welding technology

## **LEARNING OUTCOMES AND GOALS:**

### **Institutional Learning Outcomes**

- Communication – to communicate effectively;
- Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion;
- Social Consciousness – to understand what it means to be a socially conscious person, locally and globally;
- Responsibility – to recognize how personal choices affect self and society.

### **Course Outcomes and Competencies**

1. Safe use of all equipment as well as all safety guidelines will be discussed and utilized.
2. Establish an electric arc and deposit a 6” long bead in both stringer and weave style in all positions.
3. Demonstrate restarts as needed in both stringer and weave beads in all positions.

4. Demonstrate the ability to produce a surfacing weld in all positions.
5. Demonstrate the ability to produce a single pass fillet weld, in lap, tee and corner joints in all positions.
6. Demonstrate the ability to produce a multi-pass fillet weld, in lap, tee and corner joints in all positions.
7. Demonstrate the ability to conduct a Visual Examination of these welds to AWS criteria.