ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Workforce Development

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

Date: Summer 2022

Credit Hours: 2

Complete all that apply or mark "None" where appropriate:

Prerequisite(s): None

Enrollment by assessment or other measure? ☐ Yes ☒ No
If yes, please describe:

Corequisite(s): None

Pre- or Corequisite(s): None

Consent of Instructor: ☒ Yes ☐ No

Delivery Method:

☒ **Lecture**	**1 Contact Hours**	**(1 contact = 1 credit hour)**
☐ **Seminar**	**0 Contact Hours**	**(1 contact = 1 credit hour)**
☒ **Lab**	**2 Contact Hours**	**(2-3 contact = 1 credit hour)**
☐ **Clinical**	**0 Contact Hours**	**(3 contact = 1 credit hour)**
☐ **Online**		
☐ **Blended**		
☐ **Virtual Class Meeting (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.

ACCREDITATION STATEMENTS AND COURSE NOTES:
None

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.

The following grading scale will be used:
A= 90-100
B= 80-89
C= 70-79
D= 60-69
F= 0-59

INSTRUCTIONAL MATERIALS:
Textbooks
Modern Welding textbook and workbook, G-W, 12th edition

Resources
Current Learning Management System (LMS) content available
Videos
Handouts
Lincoln Electric Welding technology center
Hobart institute of Welding technology

LEARNING OUTCOMES AND GOALS:

Institutional Learning Outcomes

☒ 1) Communication – to communicate effectively;

☒ 2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion;

☐ 3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally;

☒ 4) 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.