



ILLINOIS VALLEY COMMUNITY COLLEGE

COURSE OUTLINE

DIVISION: Workforce Development

COURSE: MET 1209 Welding Metallurgy

Date: Spring 2023

Credit Hours: 3

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:	<input checked="" type="checkbox"/> Lecture	2 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)

Offered: **Fall** **Spring** **Summer**

CATALOG DESCRIPTION and IAI NUMBER (if applicable):

Basic introduction to ferrous and nonferrous material and alloys, and their molecular activity during processing from raw material to finished product. The composition and changes of the metal are analyzed under laboratory testing to heat treatment, destructive and nondestructive testing, and various fabrication processes.

ACCREDITATION STATEMENTS AND COURSE NOTES:

None

COURSE TOPICS AND CONTENT REQUIREMENTS:

- 1.0 Metallurgy Basics
- 2.0 Physical and Mechanical Properties of Metals
- 3.0 Material Coding Systems
- 4.0 Heat Treating
- 5.0 Non-Destructive Testing
- 6.0 Fabrication Metallurgy
- 7.0 Hardness Testing
- 8.0 Analyzing Metal and Process Failures

INSTRUCTIONAL METHODS:

Lecture
Demonstrations
Lab
Observations

EVALUATION OF STUDENT ACHIEVEMENT:

Quizzes
Tests
Comprehensive final
Labs
Demonstrations/Observations

INSTRUCTIONAL MATERIALS:

Textbooks

G-W Publisher- Metallurgy Fundamentals, sixth edition

Resources

None

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. Identify and apply process and physical metallurgy
2. Know and apply terminology and testing for various mechanical properties
3. Display proficiency with both the ferrous and nonferrous coding system
4. Understand and perform the heat treating process
5. Know and perform various non-destructive testing methods