Virginia Western Community College
WEL 145
Welding Metallurgy

Prerequisites

None.

Course Description

Studies steel classifications, heat treatment procedures, properties of ferrous and non-ferrous metals. Discusses techniques and practices of testing welded joints and destructive/nondestructive, visual magnetic, and fluorescent testing.

Semester Credits: 3 Lecture Hours: 3 Lab/Clinical/Internship Hours: 0

Required Materials

Textbook:
Modern Welding. ISBN: 9781605257952.

Other Required Materials:
Safety Goggles/Glasses (with side shields) and the proper shade for the process being done must be worn at all times while in the lab.

Course Outcomes

At the completion of this course, the student should be able to:

- To explore the metallurgical aspects involved in refining, processing and utilizing difference metals.
- To extensively study characteristics and theory pertaining to ferrous materials and the welding industry.
- To understand the use and importance of Quality Control and QC testing.
- To develop information allowing a student to identify unknown materials in the field situation.
- To finish with a knowledge of the specific differences between cast iron and steels.

Topical Description

Week 1	Introduction
Week 2	Production of Metals
Week 3	Production of Metals
Week 4	Test One – Production of Metals (Open book, open notes)
Week 5	Metal Properties and Identification
Week 6	Metal Properties and Identification
Week 7	Test Two - Metal Properties and Identification (Open book, open Notes)

Week 8   Heat Treatment of Metals
Week 9   Heat Treatment of Metals
Week 10   Heat Treatment of Metals
Week 11   Test Three – Heat Treatment of Metals (Open book, open notes)
Week 12   Inspecting and Testing Welds
Week 13   Inspecting and Testing Welds
Week 14   Thanksgiving Break
Week 15   Test Four – Inspecting and Testing Welds (Open book, open notes)
Week 16   Final Exam

Notes to Instructors

- None