

COURSE OUTLINE **Blueprint Reading (Welding)**

Course Description

WE 119. Blueprint Reading (Welding). 3 hours credit. Prerequisite: A score at a pre-determined level in reading, writing, and math on a diagnostic instrument selected by the department. This course will enable the student to interpret drawing at a fundamental level as applied to the welding trade. Emphasis will be placed on developing the student's ability to interpret blueprints and learn symbols from which the welder must work.

Course Relevance

The principles learned in this course will allow the student to understand how proper print reading skills and interpretation will prepare them for a position in a career of welding. The welding industry impacts numerous aspects of production lines, laboratory, research and development, national defense, and sales and repair within the welding industry.

Required Materials

Walker, J.R., Polanin, W. R. (2001). *Welding print reading*. Tinley Park, IL: Goodheart-Wilcox Company, Inc.

Learning Outcomes

The intention is for the student to be able to:

1. Illustrate an understanding of two dimensional concepts
2. Demonstrate the ability to interpret print drawings
3. Identify key industry welding symbols

Primary Learning PACT Skills that will be DEVELOPED and/or documented in this course

Through the student's involvement in this course, he/she will develop his/her ability in the following primary PACT skill areas:

1. Critical Thinking
 - Through the analysis of current print reading concepts, the student will recognize and understand the role these concepts play in modern welding fabrication.
2. Problem Solving
 - Through the analysis of print reading concepts and the proper identification of weld symbols, the student will be able to interpret basic welding blueprints and make decisions regarding the fabrication of resulting weldments.
3. Field-Related Technology

- Through various blueprint exercises the student will develop the ability to correctly interpret blueprint drawings.
- Communication skills.

Secondary skills (developed but not documented):

Listening
Reading

Major Summative Assessment Task(s)

These learning outcomes and the primary Learning PACT skills will be demonstrated by:

1. Creating drawings using two-dimensional concepts in “hands-on” projects
2. Demonstrating the ability to identify and apply current industry welding symbols in “hands-on” projects
3. Demonstrating the ability to interpret current industry welding blueprint practices in “hands-on” projects

Course Content

- I. Themes - Key recurring concepts that run throughout this course:
 - A. Interpretation
 - B. Analysis
- II. Issues - Key areas of conflict that must be understood in order to achieve the intended outcome:
 - A. The proper identification of weld symbols
 - B. The impact of universal print reading interpretation
- III. Concepts – Key concepts that must be understood to address the issues:
 - A. Terminology
 - B. The principles of print reading interpretation
 - C. Process analysis
 - D. Two dimensional concepts
- IV. Skills / Competencies - Actions that are essential to achieve the course outcomes:
 - A. Perform basic print reading interpretations
 - B. Identify key print reading weld symbols
 - C. Recognize and illustrate basic two dimensional drawing concepts

Learning Units

- I. Introduction
 - A. Prints – The language of industry
 - B. Review of measurement
 - C. A review of fractions and decimals
- II. Print reading basics
 - A. Alphabet of lines
 - B. Understanding prints
 - C. Types of prints

- D. Print format
- E. Basic plane geometry
- F. Dimensioning welding prints

III. Welding fundamentals

- A. Welding processes
- B. Structural metals
- C. Common types of joint and welds

IV. Reading welding prints

- A. Welding symbols
- B. Fillet welds
- C. Groove welds
- D. Plug and slot welds
- E. Spot, seam, and projection welds
- F. Surfacing welds
- G. Flange and sheet metal welds
- H. Pipe welding
- I. Brazed joints

V. Manufacturing and testing for industry

- A. Basic metalworking processes
- B. Examining and testing welds
- C. Print reading activities

Learning Activities

Learning activities will be geared towards classroom exercises. Classroom lecture is designed to enable the student to understand the key principles in process analysis, welding symbol identification, print interpretation, and two dimensional illustrations.

Grade Determination

The student will be graded on completion of assessment tasks (learning activities), adequate participation (discussion) and the final project