

# ATIW-2320: WELDING BLUEPRINTS AND DESIGN

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## Cuyahoga Community College

**Viewing: ATIW-2320 : Welding Blueprints and Design**

**Board of Trustees:**

January 2020

**Academic Term:**

Fall 2020

**Subject Code**

ATIW - Appld Indus Tech - Ironworking

**Course Number:**

2320

**Title:**

Welding Blueprints and Design

**Catalog Description:**

In-depth study of welding blueprint lines, arrows, views, and symbols; basic layout construction; and identification of welding positions, parts of fillet welds, groove joints and welds, and backup materials. Includes recognition, drawing, measurement calculations, and problem solving.

**Credit Hour(s):**

3

**Lecture Hour(s):**

3

## Requisites

**Prerequisite and Corequisite**

ATIW-2310 Welding Specialties or concurrent enrollment, or departmental approval.

## Outcomes

**Course Outcome(s):**

Interpret the alphabet of lines in welding blue prints.

**Objective(s):**

1. Recognize individual lines of alphabet.
2. Draw examples of lines.
3. Research lines on blue prints.

**Course Outcome(s):**

Interpret the elements of basic and supplementary welding symbols

**Objective(s):**

1. Recognize the individual parts of weld symbols.
2. Draw examples of weld symbols.
3. Research weld symbols on blue print.

**Course Outcome(s):**

Analyze the location significances of arrows and symbols

**Objective(s):**

1. Correlate the differences of line locations.
2. Interpret the difference between weld symbols.

3. Interpret the significance of weld arrows.
4. Draw examples of weld lines and symbols.

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**Course Outcome(s):**

Apply pictorial drawings and orthographic views

**Objective(s):**

1. Plan uses of weld lines and symbols.
2. Evaluate in drawings.
3. Create drawings.

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**Course Outcome(s):**

Correlate measurements for different weld symbols

**Objective(s):**

1. Evaluate difference in measurements.
2. Design weld symbols with different measurements.

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**Course Outcome(s):**

Evaluate basic construction lay outs.

**Objective(s):**

1. Plan construction layouts.
2. Write construction layouts.
3. Apply construction layouts.

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**Course Outcome(s):**

Interpret welding positions and parts of fillet welds and groove welds.

**Objective(s):**

1. Utilize weld positions.
2. Design parts of fillet weld.
3. Design parts of groove weld.
4. Evaluate differences of fillet weld and groove weld.

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**Methods of Evaluation:**

1. Quizzes
2. Exams
3. Classroom participation
4. Demonstration of project assignments

**Course Content Outline:**

1. Welding blueprints
  - a. Alphabet of lines
  - b. Basic welding symbols
  - c. Supplementary welding symbols
  - d. Arrows
  - e. Pictorial drawings
  - f. Orthographic views
  - g. Weld symbol measurements
2. Basic construction layout
  - a. Steps
  - b. Straight lines
  - c. Angles

- d. Circles
  - e. Triangles
  - f. Ellipses
3. Welding positions
  4. Welds
    - a. Fillet
    - b. Groove
      - i. single
      - ii. double
  5. Backup materials
  6. Joints
    - a. Groove
    - b. Corner
    - c. Edge
    - d. Lap
    - e. T-joints

## Resources

Brown, Walter C. (2019) *Print Reading for Construction (7th ed)*, Tinley Park, Illinois: Goodheart-Willcox.

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Hoffman, Edward G. and Felix B. Romero. (1983) *Welding Blueprint Reading*, North Scituate, Massachusetts: Breton Publishers.

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Putnam, Robert E. (1986) *Welding Print Reading*, Englewood Cliffs, New Jersey: Prentice Hall, c.

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Stinchcomb, Craig. (1996) *Reading Welding Blueprints and Symbols*, Englewood Cliffs, New Jersey: Prentice Hall; London: Prentice-Hall International (UK).

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Walker, John R. & Polanin, W.R. (2020) *Welding Print Reading (7th ed.)*, Tinley Park, Illinois: Goodheart-Willcox, c.

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International Association of Bridge, Structural and Ornamental Iron Workers. (1990) *Welding Manual for Ironworkers, Manual No. 10: Welding Blueprint Reading, Layout, Design, and Preparation*, Washington, D.C.: AFL-CIO.

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## Resources Other

International Association of Bridge, Structural, Ornamental and Reinforcing IronWorkers, Instructor Materials. <http://www.ironworkers.org/training/for-instructors>

Top of page

Key: 383