

Lassen Community College Course Outline

WT-51 Blueprint and Symbol Reading for Welders

2.0 Units

I. Catalog Description

This course is an introduction to blueprint and symbol interpretation practices commonly used in the welding and metal fabrication industries. This course will cover drawing types, symbols, views, dimensions and tolerances. This course will further develop the student's range of thinking required to assemble simple components and complex assemblies from welding prints. This course has been approved for online delivery.

Transfer Status: NT

34 hours lecture, 68 Outside Class Hours, 102 Total Student Learning Hours

Scheduled: Fall

II. Coding Information

Repeatability: Not Repeatable, Take 1 Time

Grading Option: Graded or Credit/No Credit

Credit Type: Credit - Degree Applicable

TOP Code: 095650

III. Course Objectives

A. Course Student Learning Outcomes

1. Interpret technical information used on industrial working and assembly drawings.
2. Analyze and decipher complex welding symbols listed as defined by the American Welding Society (AWS)

B. Course Objectives

Upon completion of this course the student will be able to:

1. Differentiate the common methods used to develop basic drawings and blueprints for the manufacturing industry.
2. Solve simple mathematical problems as related to working with print dimensions and tolerances.
3. Interpret dimensions and read scaled drawings. Determine size and location of components on a part to be assembled, machined or welded.
4. Demonstrate the basic skills of sketching a freehand drawing to describe the shape and size of an object.
5. Interpret general notes and specifications on blueprints.
6. Read and interpret welding symbols and abbreviations.
7. Explain common destructive and nondestructive weld test inspection symbols and how they're denoted on common prints and drawings.

IV. Course Content

A. Basic Lines and Views

1. Object lines, hidden, center, dimension, extension, leader, cutting plane, section, chain, short break, long break, and phantom lines.
2. Views, back, top, front, side, bottom

B. Sketching

1. Purpose of sketching
2. Basic sketching techniques

C. Notes and Specifications

1. Local notes
2. General notes
3. Material specifications

C. Dimensions

1. Purpose of dimensions
2. Linear and angular
3. Radius arc and drilled hole
4. Tolerance
5. Scale sizes
6. Thread dimension

E. Bill of Material

1. Preparation of a bill of material

F. Structural Shapes

1. Bar – cold/hot rolled
2. Sheet
3. Strip or band
4. Plate
5. Angle
6. Tees
7. Channel
8. Beam
9. Tubing
10. Pipe

G. Views

1. Views with conventional breaks
2. Auxiliary views
3. Enlarged detail views
4. Developed views
5. Revolved views
6. Untrue projection
7. Corrections and revisions on prints

H. Sections

1. Full sections
2. Half section
3. Revolved sections
4. Assembled sections
5. Phantom sections
6. Aligned sections
7. Broken-out sections

I. Detail, Assembly and Subassembly Prints

1. Detail drawing
2. Assembly prints
3. Subassembly prints

J. Welding Symbols and Abbreviations

1. Welding symbol
2. Location of weld symbol
3. Preferred symbols
4. Multiple weld symbols

K. Basic Joints for Fabrication

1. Basic joints
2. Other kinds of joints
3. Joints commonly used with structural shapes
4. Joint fit up

L. Weld Symbols

1. Fillets welds
2. Groove welds
3. Backing and melt through welds
4. Plug or slot welds
5. Surfacing welds
6. Flange welds
7. Spot welds
8. Projection welds
9. Seam welds
10. Stud welds

M. Applied Metric Conversions

1. Introduction to metrics
2. Structure of the metric system

N. Blueprint Reading for Related Trades

1. Symbols for pipe layouts
2. Dimensioning pipe layouts

O. Inspection and Testing

1. Overview of inspection and testing practices
2. Destructive testing
3. Non-destructive testing

V. Assignments

A. Appropriate readings

Textbook Reading-Students will be expected to complete all reading assignments.

B. Writing assignments

None

C. Out of class assignments

May include:

1. Homework – end of chapter review questions from textbook

VI. Methods of Evaluation

Traditional Classroom Evaluation

Methods for determining student grades will be accomplished by the following:

- A. Homework assignments (Textbook review questions)
- B. Written tests/quizzes

Online Evaluation

A variety of methods will be used, such as: research papers, asynchronous and synchronous (chat/forum) discussions, online quizzes and exams, posting to online website and email communications.

VII. Methods of Delivery

Check those delivery methods for which, this course has been separately approved by the Curriculum/Academic Standards Committee.

Traditional Classroom Delivery Correspondence Delivery

Hybrid Delivery

Online Delivery

Online Delivery

Participation in forum based discussions. Online exercises/assignments contained on website. Web based video vignettes with discussion paper, email communications, postings to forums, online lecture notes and web links will compromise the method of instruction.

VIII. Representative Texts and Supplies

Text:

A.E. Bennett/Louis J. Siy, *Blueprint Reading for Welders*, 9th edition, 2014, Cengage Learning. ISBN-10: 1-133-60578-8, ISBN-13: 978-1-133-60578-2

Supplies: None

IX. Discipline/s Assignment

Welding Technology

X. Course Status

Current Status: Active

Original Approval Date: 03/31/2015

Board Approval: 04/14/2015

Chancellors Office Approval: 05/30/2015

Revised By: Kory Konkol

Latest Curriculum/Academic Standards Committee Revision Date: 02/15/2022