

Bossier Parish Community College
Master Syllabus

Course Prefix and Number: WELD 109

Credit Hours: 4-3-3

Course Title: Advanced Pipe Welding and Fitting

Course Prerequisites: *Pre-requisite:* WELD 103 and WELD 105;
Co-requisite WELD 107 OR Instructor Permission

Textbook: Modern Welding Common Cartridge - ISBN 978-1-63563-888-2: 12th edition, Goodheart Wilcox Publisher.

Course Description: Covers the knowledge, skills, and abilities required of an AWS Level II-Advanced Welder for SMAW, GMAW, FCAW and GTAW. Students will focus a single weld process or multiple weld processes, in which they have not met level II proficiency. Lectures will cover basic pipe fitting skills such as print reading, pipe spool layout, joint fit-up, standard pipe fitting take-outs, rolling offsets, and long radius pipe bends. Student projects will involve fitting and welding pipe spools according to project drawings and specifications.

Learning Outcomes:

At the end of this course, the student will or will be able to:

- A. Demonstrate knowledge of occupational orientation skills
- B. Demonstrate a fundamental knowledge of pipe layout and fit-up principles
- C. Perform basic pipefitting trade math
- D. Read drawings, P&IDs, isometric drawings, spool sheets and detail sheets
- E. Fabricate socket and butt weld pipe spools
- F. Recognize the principles of and demonstrate the ability to use gas tungsten arc welding (GTAW), gas metal arc welding (GMAW), flux core arc welding (FCAW) and/or shielded metal arc welding (SMAW).

To achieve the learning outcomes, the student will or will be able to:

(The letter designations at the end of each statement refer to the learning outcome(s)).

1. Follow safe practices. (A)
2. Prepare time, safety, or job cards, reports or records. (A)
3. Perform housekeeping duties. (A)
4. Follow verbal instructions to complete work assignments. (A)
5. Follow written details to complete work assignments. (A)
6. Follow safe operating procedures. (B)
7. Select shop equipment. (B)
8. Set up shop equipment. (B)
9. Operate shop equipment. (B)
10. Operate lifting equipment. (B)
11. Layout parts using advanced measurement practices. (B)

Revised: 06/17/2020

12. Follow safe handling procedures. (B)
13. Select layout tools. (B)
14. Interpret drawing, sketch or specification information. (B)
15. Prepare work area for layout. (B)
16. Prepare material lists. (B)
17. Select material. (B)
18. Layout material. (B)
19. Perform bending or forming operations. (B)
20. Perform drilling or boring operations. (B)
21. Perform shearing operations. (B)
22. Perform oxyfuel gas cutting, beveling and piercing operations. (B)
23. Perform arc cutting, beveling and piercing operations. (B)
24. Fit-up parts or assemblies. (B)
25. Explain how to use ratios and proportions (C)
26. Solve basic algebra, area, volume, and circumference problems (C)
27. Solve for right triangles using the Pythagorean Theorem (C)
28. Identify symbols and abbreviations on P&IDs. (D)
29. Identify piping arrangement drawings. (D)
30. Read and interpret P&IDs, plan views, and section views. (D)
31. Identify isometric drawings. (D)
32. Read isometric drawings taken from plan views. (D)
33. Draw isometric drawings. (D)
34. Read and interpret spool drawings taken from isometric drawings. (D)
35. Identify and explain types of socket weld and butt weld piping materials. (E)
36. Identify and explain socket weld and butt weld fittings. (E)
37. Read and interpret socket weld and butt weld piping drawings. (E)
38. Determine pipe lengths between socket weld and butt weld fittings. (E)
39. Prepare pipe ends for fit-up
40. Fabricate socket weld and butt weld fittings to pipe. (E)
41. Perform alignment procedures for various types of fittings. (E)
42. Complete a welder qualification test per an applicable code. (F)

Course Requirements: Complete all homework assignments, in-class equipment exercises, in class tests, and final exam.

Course Grading Scale:

- 90–100 = A
- 80–89 = B
- 70–79 = C
- 60–69 = D
- 0 – 59 = F

Attendance Policy: The college attendance policy is available at <http://www.bpsc.edu/catalog/current/academicpolicies.html>

Course Fees: This course is accompanied with an additional non-refundable fee for supplemental materials, laboratory supplies, software licenses, certification exams and/or clinical fees.

Nondiscrimination Statement: Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

COORDINATOR FOR SECTION 504 AND ADA

Angie Cao, Student and Disability Services Specialist

Disability Services, F-254

6220 East Texas Street

Bossier City, LA 71111

Phone: 318-678-6511

Email: acao@bpcc.edu

Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.

Equity/Compliance Coordinator

Teri Bashara, Director of Human Resources

Human Resources Office, A-105

6220 East Texas Street

Bossier City, LA 71111

Phone: 318-678-6056

Hours: 8:00 a.m.-4:30 p.m. Monday - Friday, excluding holidays and weekends.