COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Pipe Welding
COURSE NUMBER	WELD 0275
DIVISION	Career and Technical Education
DEPARTMENT	WELD
CIP CODE	48.0508
CREDIT HOURS	4
CONTACT HOURS/WEEK	Class: 1 Lab: 6
PREREQUISITES	WELD 0100

COURSE DESCRIPTION
Through a variety of classroom and/or shop/lab learning and assessment activities, the students in this course will: Set up, weld and test weld coupons in various pipe positions and materials.

PROGRAM ALIGNMENT
This course is part of a program aligned through the Kansas Board of Regents and Technical Education Authority. For more information, please visit:
https://kansasregents.org/workforce_development/program-alignment

PROGRAM LEARNING OUTCOMES

1. The student will be able to identify high risk areas that should be avoided by operators while automated machinery is running.
2. After completing the program, students will be able to exhibit a high-level of professionalism including appropriate dress, attendance, communication skills and other soft skills necessary
3. The student will be able to demonstrate the ability to successfully complete a welding project.

TEXTBOOKS
http://kckccbookstore.com/

METHOD OF INSTRUCTION
A variety of instructional methods may be used depending on content area. These include but are not limited to lecture, multimedia, cooperative/collaborative learning, labs and demonstrations, projects and presentations, speeches, debates, panels, conferencing, performances, and learning experiences outside the classroom. Methodology will be selected to best meet student needs.

COURSE OUTLINE
I. Pipe welding intro

A. Pipe positions
B. Electrode angles
C. Test pipe preparation
D. Tacking and placement of pipe

II. Root pass
A. SMAW (ER6010)
B. GTAW

III. Fill and capping passes
A. SMAW (ER7018)
B. GTAW

IV. Testing
A. Visual inspection
1. Face
2. Root
B. Weld coupon prep and testing

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

A. Properly prepare test weldment for welding.
1. Identify joint geometry as given in a code or WPS.
2. Prepare ends of pipe to conform with joint geometry given.
3. Tack pieces of pipe together with proper alignment and gap to conform with WPS.
4. Identify pipe welding positions.
5. Tack test weldment in proper position for test according to WPS.

B. Properly weld root of test pipes in various positions.
6. Perform root weld of test pipe in the 2G position with GTAW process.
7. Perform root weld of test pipe in the 2G position with SMAW process.
8. Perform root weld of test pipe in the 5G position with GTAW process.
9. Perform root weld of test pipe in the 5G position with SMAW process.
10. Perform root weld of test pipe in the 6G position with GTAW process.
11. Perform root weld of test pipe in the 6G position with SMAW process.

C. Properly weld fill and cap of test pipes in various positions.
12. Perform fill and cap welds of test pipe in the 2G position with GTAW process.
13. Perform fill and cap welds of test pipe in the 2G position with SMAW process.
14. Perform fill and cap welds of test pipe in the 5G position with GTAW process.
15. Perform fill and cap welds of test pipe in the 5G position with SMAW process.
16. Perform fill and cap welds of test pipe in the 6G position with GTAW process.
17. Perform fill and cap welds of test pipe in the 6G position with SMAW process.

D. Inspect pipe welds as determined by given specification.
18. Inspect face of weld for proper weld profile in accordance with given specification.
19. Inspect root of weld for proper penetration in accordance with given specification.
20. Inspect root of weld for proper weld profile in accordance with given specification.
21. Perform DPT weld inspection to assure that weld is in accordance with given specification.
22. Perform MT weld inspection to assure that weld is in accordance with given specification.

E. Prepare and test coupons from pipe test weldment.
   23. Find proper location of test specimens on a test weldment.
   24. Cut properly sized test specimens from a test weldment.
   25. Prepare test specimens in accordance with given specification.
   26. Bend and inspect test specimens to determine qualification in accordance with given specification.

ASSESSMENT OF COURSE LEARNING OUTCOMES AND COMPETENCIES

Student progress is evaluated through both formative and summative assessment methods. Specific details may be found in the instructor's course information document.

COLLEGE POLICIES AND PROCEDURES

Student Handbook
https://www.kckcc.edu/files/docs/student-resources/student-handbook-and-code-of-conduct.pdf

College Catalog
https://www.kckcc.edu/academics/catalog/index.html

College Policies and Statements
https://www.kckcc.edu/about/policies-statements/index.html

Accessibility and Accommodations
https://www.kckcc.edu/academics/resources/student-accessibility-support-services/index.html.