COURSE SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Advanced SMAW
COURSE NUMBER	WELD 0220
DIVISION	Career and Technical Education
DEPARTMENT	WELD
CIP CODE	48.0508
CREDIT HOURS	4
CONTACT HOURS/WEEK	Class: 1 Lab: 6
PREREQUISITES	WELD 0120

COURSE DESCRIPTION

Through classroom and/or lab/shop learning and assessment activities, students in this course will: describe the Shielded Metal Arc Welding process (SMAW); demonstrate the safe and correct set up of the SMAW workstation; associate SMAW electrode classifications with base metals and joint criteria; demonstrate proper electrode selection and use based on metal types and thicknesses; build pads of weld beads with selected electrodes in the Vertical position; build pads of weld beads with selected electrodes in the Over Head position; perform basic SMAW welds on selected weld joints; and perform visual inspection of welds.

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. SMAW welding in the vertical position
   A. Fillet welds (3F)
   B. Groove welds (3G)
II. SMAW welding in the overhead position
   A. Fillet welds (4F)
   B. Groove welds (4G)
III. Weld inspection
   A. SMAW visual inspection
      1. Visual inspection criteria
      2. Common discontinuities in vertical and overhead positions
   B. SMAW non destructive testing
      1. Ultrasound testing
      2. Radiograph testing
      3. Penetrant testing
      4. Magnetic particle testing

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

A. Demonstrate the safe and correct set up of the SMAW workstation.
   1. Demonstrate proper inspection of equipment
   2. Demonstrate proper use of PPE
   3. Demonstrate proper placement of work piece connection
   4. Check for proper setup of equipment
   5. Inspect area for potential hazards/safety issues

B. Relate SMAW electrode classifications with base metals and joint criteria.
   6. Determine proper electrode for given joint based on material and position of weld
   7. Determine proper type of electrodes to be used in a variety of industry applications

C. Demonstrate proper electrode selection and use based on metal types and thicknesses.
   8. Select the proper electrode type and size relative to metal size, type and thickness
   9. Select the proper electrode type and size based on material specifications

D. Build pads of weld beads with selected electrodes in the Vertical position.
   10. Use the proper safety procedures and PPE
   11. Use the proper setup procedures
   12. Create a pad of beads using SMAW electrode
   13. Weld exhibits proper uniformity and profile

E. Build pads of weld beads with selected electrodes in the Over Head position.
   14. Use the proper safety procedures and PPE

15. Use the proper setup procedures
16. Create a pad of beads using SMAW electrode
17. Weld exhibits proper uniformity and profile

F. Perform basic SMAW welds on selected weld joints.
18. Use the proper setup procedures
19. Use the proper safety procedures and PPE
20. Perform a fillet weld in Over Head position
21. Perform fillet weld in Vertical position
22. Perform a groove weld in a Vertical position
23. Perform a groove weld in a Over Head position
24. Use tools appropriate for the task

G. Perform visual inspection of welds.
25. Identify common visual discontinuities and defects on welds
26. Determine causes of discontinuities and defects of welds
27. Inspect welds for pass/fail ratings according to industry standards
28. Use appropriate inspection tools

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.