

SYLLABUS

LAST REVIEW	Fall 2022
COURSE TITLE	Cutting Processes
COURSE NUMBER	WELD 0110
DIVISION	Career and Technical Education
DEPARTMENT	WELD
CIP CODE	48.0508
CREDIT HOURS	3
CONTACT HOURS/WEEK	Class: 1 Lab: 4
PREREQUISITES	WELD 0100

COURSE DESCRIPTION

Through classroom and/or shop/lab learning and assessment activities, students in this course will: distinguish several types of mechanical and thermal cutting equipment and processes used in the welding trade; demonstrate the safe and correct set up, operation and shut down of the Oxy-fuel (OFC) workstation; demonstrate the safe and correct set up, operation and shut down of the Plasma Arc (PAC) workstation; demonstrate the safe and correct set up, operation and shut down of the Carbon Arc Cutting with Air (CAC-A) workstations; demonstrate safe and proper operation of several types of mechanical cutting equipment; and inspect quality and tolerance of cuts according to industry standards.

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. Students will be able to explain job/site and precautions for job site hazards and will be able to determine the use of Personal Protective equipment (PPE) as well as be able to identify the safety equipment and procedures related to safe work practices and environment
2. Student will be able to demonstrate the use of good communication skills including listening, following directions, speaking, and using correct grammar in conducting a job search.

3. Student will be able to create fillet and groove welds in flat and horizontal positions and identify common visual discontinuities and defects on welds and determine causes of discontinuities and defects of welds.

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. Cutting basics
 - A. Methods of cutting
 - B. Measurement for cutting
 - C. Cutting safety
 - i. Mechanical cutting hazards
 - ii. Thermal cutting hazards
- II. Mechanical cutting
 - A. Sawing
 - B. Shearing
 - C. Punching
 - D. Machining
- III. Thermal Cutting
 - A. PAC
 - B. OFC
 - i. Oxy Acetylene
 - ii. Other fuels
 - C. CAC-A

COURSE LEARNING OUTCOMES AND COMPETENCIES

Upon successful completion of this course, the student will:

- A. Distinguish several types of mechanical and thermal cutting equipment and processes used in the welding trade.
 1. Identify types of cutting process.
 2. Define the cutting process advantage.
 3. Define the cutting process disadvantage.
 4. Identify different components of the process equipment.
 5. Describe required safety procedures of the process.

6. Describe the set-up procedures of the process.
- B. Demonstrate the safe and correct set up, operation and shut down of the Oxy-fuel (OFC) workstation.
 7. Use the proper personal protective equipment (PPE).
 8. Identify safety hazards of the equipment.
 9. Properly set up the equipment.
 10. Properly light and adjust the torch.
 11. Make a variety of quality cuts.
 12. Properly shut down the equipment.
- C. Demonstrate the safe and correct set up, operation and shut down of the Plasma Arc (PAC) workstation.
 13. Use the proper personal protective equipment (PPE).
 14. Identify the safety hazards of the equipment.
 15. Properly set up the equipment.
 16. Properly shut down the equipment.
 17. Make a variety of quality cuts on various types and sizes of metal.
- D. Demonstrate the safe and correct set up, operation and shut down of the Carbon Arc Cutting with Air (CAC-A) workstations.
 18. Use the proper personal protective equipment (PPE).
 19. Identify the safety hazards of the equipment.
 20. Properly set up the equipment.
 21. Make a variety of quality gouges and cuts on various metals.
 22. Properly shut down the equipment.
- E. Demonstrate safe and proper operation of several types of mechanical cutting equipment.
 23. Identify safety hazards of the equipment.
 24. Use the proper personal protective equipment (PPE).
 25. Properly set up the mechanical cutting equipment.
 26. Make a variety of quality cuts on various metals.
 27. Properly shut down the equipment.
- F. Inspect quality and tolerance of cuts according to industry standards.
 28. Inspect that the quality of edges are to industry standard.
 29. Use the proper inspection tools for the cutting process.

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>.