

## COURSE SYLLABUS

<b>LAST REVIEW</b>	Fall 2022
<b>COURSE TITLE</b>	Basic Sheet Metal Layout/Fabrications
<b>COURSE NUMBER</b>	HVAC 0108
<b>DIVISION</b>	Career and Technical Education
<b>DEPARTMENT</b>	HVAC
<b>CIP CODE</b>	47.0201
<b>CREDIT HOURS</b>	2
<b>CONTACT HOURS/WEEK</b>	Class:                      Lab: 4
<b>PREREQUISITES</b>	HVAC 0107

### COURSE DESCRIPTION

This course will continue to look at fabrication techniques, special tools, layout fundamentals, and blue print reading.

### 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](https://kansasregents.org/workforce_development/program-alignment)

### PROGRAM LEARNING OUTCOMES

1. The student will be able to demonstrate the ability to perform HVAC procedures in a safe manner
2. The student will be able to classify the different needs of equipment and summarize a solution.
3. The student will be able to exhibit a high level of professionalism including appropriate dress, attendance, communication skills and other soft skills necessary.

### TEXTBOOKS

<http://kckccbookstore.com/>

### METHODS 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. Layout/Fabrication.
  - A. Square and Rectangular Duct.
  - B. Round Metal Duct Systems.
  - C. Insulation for Metal Duct.
  - D. Ductboard Systems.
  - E. Flexible Duct.
  - F. Installing Refrigerant Piping.

## **COURSE LEARNING OUTCOMES AND COMPETENCIES**

Upon successful completion of this course:

- A. Demonstrate an understanding of duct system fabrication and installation.
  - 1. Describe the radial or spider duct systems.
  - 2. Describe the perimeter loop trunk duct system.
  - 3. Describe the plenum, trunk and branch extended plenums.
  - 4. Describe the trunk and branch reducing plenums.
  - 5. Describe the perimeter loop radial duct system.
  - 6. Demonstrate use of tape measures, rulers, and other standard measuring devices.
  - 7. Demonstrate mathematical calculations necessary for measuring, marking, cutting and fabricating three dimensional duct systems.
- B. Demonstrate an understanding of metal duct fabrication and installation.
  - 8. Demonstrate that sheet-metal duct is fabricated in sections in a sheet-metal shop.
  - 9. Adhere to standards demanded by precise measurements.
  - 10. Demonstrate use of vibration eliminators fan section and duct.
  - 11. Demonstrate fastening insulation to either the inside or outside of the duct with tabs, glue, or both.
- C. Demonstrate an understanding of ductboard systems fabrication and installation
  - 12. Demonstrate use of fiberglass duct board.
  - 13. Demonstrate use of gloves, eye protection, and facemask required for use of this material.
  - 14. Demonstrate proficiency in cutting fiberglass with special knives.
  - 15. Demonstrate techniques of configuring fiberglass duct board to simulate metal ductwork.
  - 16. Demonstrate fastening sections with staples and then taped.
  - 17. Demonstrate special support techniques for fiberglass work.
  - 18. Use fiberglass as a technique for sound absorption and fan noise reduction.
- D. Demonstrate an understanding of flexible duct fabrication and installation.
  - 19. Demonstrate use of flexible round duct for both supply and return.

20. Demonstrate avoidance of sharp configuration changes to maximize airflow.

### **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>.