



Course Outline

2026-2027 Catalog

HVAC 11 - Introduction to HVACR

Catalog Description

Transfer Status: CSU

Corequisite: ITEC 55, HVAC 12, HVAC 13

Unit(s): 4.00

Lecture: 34.00 Contact hours/68.00 Out of class hours/102.00 Total hours/2.00 Unit(s)

Lab: 102.00 Contact hours/0.00 Out of class hours/102.00 Total hours/2.00 Unit(s)

Total: 136.00 Contact hours/68.00 Out of class hours/204.00 Total hours/4.00 Unit(s)

Course Description: This course is designed to teach the introduction to Heating, Ventilation, Air Conditioning and Refrigeration (HVACR) as an industrial trade. Emphasis will be placed on developing basic safety skills, trade math, and the terminology, history, and future of the HVACR industry. These areas of instruction will be applied in several hands-on performance lab exercises. This course is part of the National Center For Construction Education and Research (NCCER) Heating, Ventilation, and Air Conditioning curriculum qualification.

Objectives

Upon successful completion of this course, the student should be able to:

1. Practice safety skills that are required on job-sites.
2. Explain the basic principles of heating, ventilation, air conditioning, and refrigeration.
3. Describe the principles that guide HVAC installation and service techniques.
4. Identify career paths available in the HVAC trade.
5. Convert units of measurement from the inch-pound system to the metric systems, and vice-versa.

Course Content

Topic Titles / Suggested Time Topic

Lecture

<u>Topics</u>	<u>Lec Hrs</u>
Introduction and Safety	3.50
Industry History	5.50
Industry Future	5.50
Industry Terminology	5.00
Trade Math	5.00
Safety in the field	6.50
Business Communication	3.00
Total Hours: 34.00	

Lab

<u>Topics</u>	<u>Lab Hrs</u>
Introduction and Safety	6.00
Industry History	12.00
Industry Future	12.00
Industry Terminology	12.00
Trade Math	20.00
Safety in the field	20.00
Business Communication	20.00
Total Hours: 102.00	

Methods of Instruction

- A. Demonstrations
- B. Homework: Students are required to complete two hours of outside-of-class homework for each hour of lecture
- C. Laboratory Experiments
- D. Lecture
- E. Multimedia Presentations

Methods of Evaluation

- A. Exams/Tests
- B. Quizzes
- C. Homework
- D. Lab Projects

Examples of Assignments

Reading Assignments

1. Read the module on field safety and be prepared to discuss in class.
2. Read assigned trade journal article and be prepared to discuss in class.

Writing Assignments

1. Write an order of operations for service techniques used as it relates to field inspections of equipment.
2. Write a two-page essay, explaining how the trade journal article can be implemented in workplace safety and how it relates to the class.

Out-of-Class Assignments

1. Research online the proper process for setting up an electrical circuit using manufactures publications and be prepared to discuss in class.
2. Research OSHA publications for the use and safety of power tools properly and write a one-page essay.

Recommended Materials of Instruction

National Center for Construction Education and Research (NCCER). (2018). Heating, Ventilating, and Air Conditioning - Level 1. *Pearson Education INC.*

Other Learning Materials

All tools listed in the HVACR Program Guide.

Minimum Qualifications

Air Cond,Refrig,Heating
Industrial Technology

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