

**HVAC 101 Course Outline as of Summer 2025****CATALOG INFORMATION**

Dept and Nbr: HVAC 101 Title: INTRO TO HVACR

Full Title: Introduction to HVACR

Last Reviewed: 11/27/2023

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	3.00	6	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00

Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable

Grading: Grade or P/NP

Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP

Also Listed As:

Formerly: HVACR 101

**Catalog Description:**

This course introduces students to the residential Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) industry. Topics such as HVACR mechanical and electrical systems, equipment, diagnostic tools, HVACR formulas and math, jobsite safety, and basic thermodynamics will be covered. Students will also learn about career opportunities, codes and regulations, and industry certification requirements for HVACR technicians.

Students with previous experience in the HVACR industry may be prepared for the more advanced HVACR courses. Contact the instructor or Department Chair for more information.

**Prerequisites/Corequisites:****Recommended Preparation:****Limits on Enrollment:****Schedule of Classes Information:**

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Conditioning, and Refrigeration (HVACR) industry. Topics such as HVACR mechanical and electrical systems, equipment, diagnostic tools, HVACR formulas and math, jobsite safety, and basic thermodynamics will be covered. Students will also learn about career opportunities, codes and regulations, and industry certification requirements for HVACR technicians.

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(Grade or P/NP)

Prerequisites/Corequisites:

Recommended:

Limits on Enrollment:

Transfer Credit:

Repeatability: Two Repeats if Grade was D, F, NC, or NP

### **ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:**

<b>AS Degree:</b>	<b>Area</b>	Effective:	Inactive:
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<b>CSU GE:</b>	<b>Transfer Area</b>	Effective:	Inactive:
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<b>IGETC:</b>	<b>Transfer Area</b>	Effective:	Inactive:
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<b>CSU Transfer:</b>	Effective:	Inactive:
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<b>UC Transfer:</b>	Effective:	Inactive:
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**CID:**

**Certificate/Major Applicable:**

Certificate Applicable Course

### **COURSE CONTENT**

**Student Learning Outcomes:**

At the conclusion of this course, the student should be able to:

1. Identify and explain the function of basic residential HVACR systems and components.
2. Identify and explain the diagnostic tools used by HVACR technicians.
3. Demonstrate an understanding of jobsite safety.

**Objectives:**

At the conclusion of this course, the student should be able to:

1. Describe the different types and functions of residential HVACR systems.
2. Demonstrate an understanding of career opportunities in the HVACR industry.
3. Demonstrate an understanding of safe work practices.
4. Describe the tools commonly used by HVACR installers.
5. Read and comprehend equipment specifications.
6. Describe the purpose and applicability of different code compliance and regulatory agencies.

**Topics and Scope:**

- I. HVACR Industry Introduction
  - A. HVACR industry overview

- B. HVACR career exploration
- II. HVACR Basics
  - A. HVACR system design
  - B. HVACR system components
  - C. HVACR tools
  - D. Plans, schematics, and drawings
  - E. HVACR math
  - F. Energy efficiency
- III. Safety and Codes
  - A. HVACR safety
  - B. Federal, state, and local codes
  - C. The Occupational Safety and Health Administration's OSHA 10 training

The Topics and Scope above will be covered in an integrated lecture and lab environment.

**Assignment:**

Lecture-Related Assignments:

1. Weekly readings and instructional videos (10-30 pages)
2. Problem sets (10-20)
3. Quizzes (5-10)
4. Midterm
5. Final exam

Lab-Related Assignments:

1. Skills demonstrations and assessments (5-10)
2. Lab activities (5-10)

**Methods of Evaluation/Basis of Grade:**

**Writing:** Assessment tools that demonstrate writing skills and/or require students to select, organize and explain ideas in writing.

None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.

Writing  
0 - 0%

**Problem Solving:** Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Problem sets

Problem solving  
10 - 40%

**Skill Demonstrations:** All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Skills demonstrations and assessments; lab activities

Skill Demonstrations  
20 - 40%

**Exams:** All forms of formal testing, other than skill performance exams.

Quizzes; midterm; final exam

Exams  
20 - 40%

**Other:** Includes any assessment tools that do not logically fit into the above categories.

Participation; lab activities

Other Category  
20 - 40%

**Representative Textbooks and Materials:**

This course will utilize HVACR industry instructional training materials.