

HVACR 101 Course Outline as of Fall 2024**CATALOG INFORMATION**

Dept and Nbr: HVACR 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:

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:**

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.

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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:

AS Degree:	Area	Effective:	Inactive:
CSU GE:	Transfer Area	Effective:	Inactive:

IGETC:	Transfer Area	Effective:	Inactive:
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CSU Transfer:	Effective:	Inactive:
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UC Transfer:	Effective:	Inactive:
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CID:

Certificate/Major Applicable:

Certificate Applicable Course

Approval and Dates

Version:	02	Course Created/Approved:	1/24/2022
Version Created:	8/24/2023	Course Last Modified:	6/25/2024
Submitter:	Benjamin Goldstein	Course last full review:	11/27/2023
Version Status:	Approved (Changed Course)	Prereq Created/Approved:	11/27/2023
Version Status Date:	11/27/2023	Semester Last Taught:	
Version Term Effective:	Fall 2024	Term Inactive:	Summer 2025

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.

OTHER REQUIRED ELEMENTS

STUDENT PREPARATION

Matric Assessment Required:	X	Exempt From Assessment
Prerequisites-generate description:	NP	No Prerequisite
Advisories-generate description:	NA	No Advisory
Prereq-provisional:	N	NO
Prereq/coreq-registration check:	N	No Prerequisite Rules Exist
Requires instructor signature:	N	Instructor's Signature Not Required

BASIC INFORMATION, HOURS/UNITS & REPEATABILITY

Method of instruction:	02	Lecture
	04	Laboratory
	72	Internet-Based, Delayed Interaction
	71	Internet-Based, Simultaneous Interaction
Area department:	INDTRA	Industrial & Trade Technology
Division:	73	Science, Technology, Engineering & Mathematics
Special topic course:	N	Not a Special Topic Course
Program status:	1	Certificate Applicable Course
Repeatability:	00	Two Repeats if Grade was D, F, NC, or NP
Repeat group id:		

SCHEDULING

Audit allowed:	N	Not Auditable
Open entry/exit:	N	Not Open Entry/Open Exit
Credit by exam:	N	Credit by examination not allowed
Budget code: Program:	0000	Unrestricted
Budget code: Activity:	0936	Environmental Control Tech

OTHER CODES

Discipline:	Air Conditioning, Refrigeration, Heating OR Construction Technology	
Basic skills:	N	Not a Basic Skills Course
Level below transfer:	Y	Not Applicable
CVU/CVC status:	Y	Distance Ed, Not CVU/CVC Developed
Distance Ed Approved:	Y	Either online or hybrid, as determined by instructor
Emergency Distance Ed Approved:	N	None
Credit for Prior Learning:	N	Agency Exam
	N	CBE
	N	Industry Credentials
	N	Portfolio
Non-credit category:	Y	Not Applicable, Credit Course
Classification:	Y	Career-Technical Education
SAM classification:	C	Clearly Occupational
TOP code:	0946.10	Energy Systems Technology
Work-based learning:	N	Does Not Include Work-Based Learning
DSPS course:	N	Not a DSPS Course

In-service:

N

Not an in-Service Course

Lab Tier:

21

Credit Lab - Tier 1