Washtenaw Community College Comprehensive Report

UAT 127 Comprehensive Management of Refrigerants, Regulations, and Safety EPA 608 (UA 6022)
Effective Term: Spring/Summer 2025

Course Cover

College: Advanced Technologies and Public Service Careers
Division: Advanced Technologies and Public Service Careers
Department: United Association Department (UAT Only)
Discipline: United Association Training
Course Number: 127
Org Number: 28200
Full Course Title: Comprehensive Management of Refrigerants, Regulations, and Safety EPA 608 (UA 6022)
Transcript Title: Compr. Man. of Refrig EPA608
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog , Time Schedule , Web Page
Reason for Submission: Course Change
Change Information:
Course title
Course description
Outcomes/Assessment
Objectives/Evaluation
Other:
Rationale: Course updates reflect current trends and technology used in the industry.
Proposed Start Semester: Spring/Summer 2025
Course Description: In this course, students will recognize the resources needed to effectively prepare apprentices for the Environmental Protection Agency (EPA) §608 certification exam at their local training center. In addition to certification-specific content, other topics will include the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standards 15 and 34 (safe refrigerant handling, storing, and management), and EPA Significant New Alternative Policy (SNAP) updates. Students will review refrigerant numbering, classifications, and various myths associated with refrigerants. Limited to United Association program participants.

Course Credit Hours

Variable hours: No
Credits: 1.5
The following Lecture Hour fields are not divisible by 15: Student Min ,Instructor Min
Lecture Hours: Instructor: 22.5 **Student:** 22.5
The following Lab fields are not divisible by 15: Student Min, Instructor Min
Lab: Instructor: 1.5 **Student:** 1.5
Clinical: Instructor: 0 **Student:** 0

Total Contact Hours: Instructor: 24 **Student:** 24
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

General Education

Degree Attributes

Below College Level Pre-Reqs

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify the current refrigerant-related regulations and policies, ASHRAE Standards and SNAP as they apply to the HVACR industry under EPA §608 of the Clean Air Act.
   Assessment 1
   Assessment Tool: Outcome-related written exam questions
   Assessment Date: Spring/Summer 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 80% of students will score 80% or higher.
   Who will score and analyze the data: U.A. Instructors

2. Identify the differences between Hydrofluorocarbon (HFC), Hydrochlorofluorocarbon (HCFC), Hydrocarbon (HC) and Hydrofluoroolefin (HFO) refrigerants, including their impact on the environment.
   Assessment 1
   Assessment Tool: Outcome-related written exam questions
   Assessment Date: Spring/Summer 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Answer key
   Standard of success to be used for this assessment: 80% of students will score 80% or higher.
   Who will score and analyze the data: U.A. Instructors

3. Demonstrate methods of teaching refrigerant management safety, in accordance with the EPA section 608 of the Clean Air Act.
   Assessment 1
   Assessment Tool: Outcome-related teaching demonstration
   Assessment Date: Spring/Summer 2025
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Observational checklist
   Standard of success to be used for this assessment: 80% of the students will score 80% or higher.
   Who will score and analyze the data: U.A. Instructors

Course Objectives

1. Review acceptable practices and safe handling of refrigerant systems as pertaining to the construction industry.
2. Recognize the current state of section 608 of the Clean Air Act.
3. Compare and contrast HFC, HFO, and HC refrigerants and their characteristics, uses, and environmental impact.
4. Identify new refrigerants being developed to replace potential global warming HFC refrigerants.
5. Identify the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) guidelines for proper and safe handling and storing of refrigerant cylinders.
6. Describe safe shipping standards for refrigeration cylinders
7. Describe the retrofits needed when replacing refrigerants in current systems.
8. Develop rubric and course material for use at Training Centers for implementation of course.
9. Identify resources used to access standards and policies for ASHRAE and EPA.
10. Interpret data contained in ASHRAE Standards 15 and 34 as it applies to a refrigerant's flammability and toxicity.
11. Explain the differences between mildly flammable (A2L) and low global warming potential (GWP) refrigerants.
12. Present a class activity to be used at the local training center.
13. Create a lesson plan for classroom discussion using online resources and curriculum material.

New Resources for Course

Course Textbooks/Resources

Textbooks

International Pipe Trades Joint Committee. *Conservation and Safe Handling of Refrigerants* , ed. IPTJATC, 2019

American Technical Publishers. *HVAC and Refrigeration Systems Training Manual* , ed. American Technical Publisher, 2014

Manuals

Periodicals

Software

Equipment/Facilities

Reviewer	Action	Date
Faculty Preparer:		
Tony Esposito	*Faculty Preparer*	*Jan 30, 2025*
Department Chair/Area Director:		
Marilyn Donham	*Recommend Approval*	*Jan 30, 2025*
Dean:		
Eva Samulski	*Recommend Approval*	*Jan 30, 2025*
Curriculum Committee Chair:		
Randy Van Wagnen	*Recommend Approval*	*Apr 24, 2025*
Assessment Committee Chair:		
Jessica Hale	*Recommend Approval*	*Apr 26, 2025*
Vice President for Instruction:		
Brandon Tucker	*Approve*	*Apr 28, 2025*

Washtenaw Community College Comprehensive Report

UAT 127 Comprehensive Management of New Refrigerants, Regulations, and Safety Issues (UA 6022)
Effective Term: Spring/Summer 2019

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: United Association Department
Discipline: United Association Training
Course Number: 127
Org Number: 28200
Full Course Title: Comprehensive Management of New Refrigerants, Regulations, and Safety Issues (UA 6022)
Transcript Title: Comprehensive Management 6022
Is Consultation with other department(s) required: No
Publish in the Following: College Catalog
Reason for Submission: New Course
Change Information:
Rationale: New United Association course
Proposed Start Semester: Spring/Summer 2019
Course Description: In this course, students will focus on refrigerant management safety and the changes the EPA (Environmental Protection Agency) is developing for the section 608 of the Clean Air Act. Students will be able to distinguish between the standard HFC (HCFC) refrigerants and the new HC and HFO refrigerants, their retrofits, and proper handling as per ASHRAE Standard, as applied to the refrigeration and cooling industry. Limited to United Association program participants.

Course Credit Hours

Variable hours: No
Credits: 1.5
The following Lecture Hour fields are not divisible by 15: Student Min ,Instructor Min
Lecture Hours: Instructor: 22.5 **Student:** 22.5
The following Lab fields are not divisible by 15: Student Min, Instructor Min
Lab: Instructor: 1.5 **Student:** 1.5
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Total Contact Hours: Instructor: 24 **Student:** 24
Repeatable for Credit: NO
Grading Methods: Letter Grades
Audit
Are lectures, labs, or clinicals offered as separate sections?: NO (same sections)

College-Level Reading and Writing

College-level Reading & Writing

College-Level Math

Requisites

General Education

Degree Attributes
Below College Level Pre-Reqs

Request Course Transfer

Proposed For:

Student Learning Outcomes

1. Identify new changes being made by the EPA to section 608 of the Clean Air Act.
   Assessment 1
   Assessment Tool: Written Exam
   Assessment Date: Spring/Summer 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Answer Key
   Standard of success to be used for this assessment: 80% of students will score 100%
   Who will score and analyze the data: UA Training Coordinator

2. Identify the differences between the HFC (HCFC) refrigerants and the HC and HFO refrigerants, and the safety impacts on the environment.
   Assessment 1
   Assessment Tool: Written Exam
   Assessment Date: Spring/Summer 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Answer Key
   Standard of success to be used for this assessment: 80% of the students will score 100%
   Who will score and analyze the data: UA Training Coordinator

3. Demonstrate methods of teaching and using course materials of refrigerant management safety, in accordance with the EPA section 608 of the Clean Air Act.
   Assessment 1
   Assessment Tool: Teaching Demonstration
   Assessment Date: Spring/Summer 2019
   Assessment Cycle: Every Three Years
   Course section(s)/other population: All
   Number students to be assessed: All
   How the assessment will be scored: Observation Checklist
   Standard of success to be used for this assessment: 80% of the students will score 100%
   Who will score and analyze the data: UA Training Coordinator

Course Objectives

1. Review acceptable practices and safe handling of refrigerant systems as pertaining to the construction industry.
2. Recognize the proposed changes to section 608 of the Clean Air Act before their adoption.
3. Compare and contrast HFC, HFO, and HC refrigerants and their characteristics, uses, and environmental impact.
4. Identify new refrigerants being developed to replace high global warming HFC refrigerants.
5. Identify the AHRI guidelines for proper and safe handling and storing of refrigerant cylinders.
6. Describe safe shipping standards for refrigeration cylinders
7. Submit updates and recommendations to re-write and develop new UA Conservation on the Safe Handling of refrigerants for new text edition.
8. Describe the retrofits needed when replacing refrigerants in current systems.

9. Develop rubric and course material for use at Training Centers for implementation of course.

New Resources for Course

Course Textbooks/Resources

Textbooks

National Refrigerant Institute. *Refrigerant Reference Guide*, 6th ed. Phildelphia, Pa: National Refrigerant Institute, 2016

Manuals

Periodicals

Software

Equipment/Facilities

Reviewer	Action	Date
Faculty Preparer:		
Tony Esposito	*Faculty Preparer*	*Dec 13, 2018*
Department Chair/Area Director:		
Marilyn Donham	*Recommend Approval*	*Jan 03, 2019*
Dean:		
Brandon Tucker	*Recommend Approval*	*Jan 16, 2019*
Curriculum Committee Chair:		
Lisa Veasey	*Recommend Approval*	*Mar 19, 2019*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Mar 28, 2019*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*Apr 07, 2019*