

Course Outline of Record

1. Course Code: ACR-378C
2.
 - a. Long Course Title: EPA-608 Preparation for Refrigerant Management
 - b. Short Course Title: EPA608 PREP REF MGT
3.
 - a. Catalog Course Description:

This course is the final module (3 of 3) necessary for the EPA 608 Certificate of Completion and for the proper system preparation and system charging Certificate of Completion. The course is designed for both the novice and existing workforce to prepare for the EPA-608 refrigerant handling license, which is a proctored exam. EPA-608 exam and materials fees are required of each student that successfully completes this course for the EPA-608 industry certification.
 - b. Class Schedule Course Description:

This course is the final module (3 of 3) necessary for the EPA 608 Certificate of Completion and for the proper system preparation and system charging Certificate of Completion. The course is designed prepare for the EPA-608 refrigerant handling license, which is a proctored exam. EPA-608 exam and materials fees are required of each student that successfully completes this course for the EPA-608 industry certification.
 - c. Semester Cycle (*if applicable*): N/A
 - d. Name of Approved Program(s):
 - NEW CERTIFICATE IN PROGRESS Certificate of Completion
4. Total Units: 0 Total Semester Hrs: 18.00
 Lecture Units: 0 Semester Lecture Hrs: 9.00
 Lab Units: 0 Semester Lab Hrs: 9.00
 Class Size Maximum: 25 Allow Audit: No
 Repeatability Noncredit - Unlimited
 Justification 0
5. Prerequisite or Corequisite Courses or Advisories:

Course with requisite(s) and/or advisory is required to complete Content Review Matrix (CCForm1-A)

 Prerequisite: ACR 378A and
 Prerequisite: ACR 378B
6. Textbooks, Required Reading or Software: (*List in APA or MLA format.*)
 - a. John Tomczyk; Eugene Silberstein, B.A., M.S., BEAP, CMHE; Bill Whitman; Bill Johnson (2017). Refrigeration Air Conditioning Technology (8th/e). Boston, MA 02210 Cengage Learning. ISBN: 978130557829
 College Level: Yes
 Flesch-Kincaid reading level: 11.1
 - b. ESCO INSTITUTE. Section 608 Certification Exam Preparatory Manual R 7th/ed. ESCO PRESS , 03-07-2006.
7. Entrance Skills: *Before entering the course students must be able:*
 - a.

Recognize the difference between types of refrigerants and how to identify them and employ the safety practices related to them.

 - ACR 378A - Differentiate between CFC's, HCFC's, HC's and HFC's
 - ACR 378A - Discuss replacement refrigerants and retrofitting

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- ACR 378A - Discuss refrigerant blends and glide.

b.

Identify the differences between Recovery, Reclamation, and Recycling.

- ACR 378B - demonstrate proper use of Recovery equipment.

c.

Compare the tools required for refrigerant recovery with the tools required for refrigerant reclamation. Explain the difference.

- ACR 378B - demonstrate proper use of Recovery equipment.

d.

Identify the tools needed in proper evacuation.

e.

Differentiate between the proper system charging processes including weigh-in, superheat, sub-cooling, Air flow verification, and the approach methods.

- ACR 378B - use proper tools to complete leak check on an HVAC system
- ACR 378B - Demonstrate use of tools to evacuate an HVAC system and using a micron gauge distinguish the difference between a leaky HVAC system and a contaminated HVAC system.

8. Course Content and Scope:

Lecture:

1. Refrigerants and the environment
2. Ozone depletion
3. Global warming
4. CFC refrigerants
5. HCFC refrigerants
6. HFC and blended refrigerants
7. Refrigerant Oil properties
8. Clean Air Act regulations
9. Methods of recovery
10. Methods of recycling
11. Requirements for reclamation
12. Practice for EPA Section 608 national certification

Lab: *(if the "Lab Hours" is greater than zero this is required)*

- Practice exams in computer lab
- Refrigerant gauge attachment to live system

9. Course Student Learning Outcomes:

1.
Successfully complete EPA-608 Core
2.
Successfully complete EPA-608 Type I Certification
3.
Successfully complete EPA-608 Type II Certification
4.
Successfully complete EPA-608 Type III Certification

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10. Course Objectives: *Upon completion of this course, students will be able to:*

- a. Acquire the (EPA-608 Universal refrigerant handling license) industry recognized credential

11. Methods of Instruction: *(Integration: Elements should validate parallel course outline elements)*

- a. Demonstration, Repetition/Practice
- b. Individualized Study
- c. Lecture
- d. Technology-based instruction

12. Assignments: *(List samples of specific activities/assignments students are expected to complete both in and outside of class.)*

In Class Hours: 18.00

Outside Class Hours: 18.00

a. In-class Assignments

1. Periodic reading assignments
2. Lab projects
3. Computer exercises
4. EPA study Guide

b. Out-of-class Assignments

1. Periodic reading assignments
2. Lab projects
3. Computer exercises
4. EPA study Guide

13. Methods of Evaluating Student Progress: *The student will demonstrate proficiency by:*

- Self-paced testing
- True/false/multiple choice examinations
- Student preparation

14. Methods of Evaluating: Additional Assessment Information:

15. Need/Purpose/Rationale -- *All courses must meet one or more CCC missions.*

PO - Career and Technical Education

Fulfill the requirements for an entry- level position in their field.

Apply critical thinking skills to research, evaluate, analyze, and synthesize information.

Display the skills and aptitude necessary to pass certification exams in their field.

IO - Critical Thinking and Communication

Apply principles of logic to problem solve and reason with a fair and open mind.

16. Comparable Transfer Course

University System	Campus	Course Number	Course Title	Catalog Year
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17. Special Materials and/or Equipment Required of Students:

18. Materials Fees: Required Material?

Material or Item	Cost Per Unit	Total Cost
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19. Provide Reasons for the Substantial Modifications or New Course:

EPA-608 certification mandates have recently changed. This course is necessary for existing workforce and new students in preparation for the EPA-608 certification exam.

20. a. Cross-Listed Course (*Enter Course Code*): N/A
b. Replacement Course (*Enter original Course Code*): N/A

21. Grading Method (*choose one*): Pass/No Pass Only

22. MIS Course Data Elements

- a. Course Control Number [CB00]: N/A
b. T.O.P. Code [CB03]: 94600.00 - Environmental Control Tec
c. Credit Status [CB04]: N - Noncredit
d. Course Transfer Status [CB05]: C = Non-Transferable
e. Basic Skills Status [CB08]: 2N = Not basic skills course
f. Vocational Status [CB09]: Possibly Occupational
g. Course Classification [CB11]: J - Workforce Preparation Enhanced Funding
h. Special Class Status [CB13]: N - Not Special
i. Course CAN Code [CB14]: N/A
j. Course Prior to College Level [CB21]: Y = Not Applicable
k. Course Noncredit Category [CB22]: J - Workforce Preparation
l. Funding Agency Category [CB23]: Y = Not Applicable
m. Program Status [CB24]: 1 = Program Applicable

Name of Approved Program (*if program-applicable*): NEW CERTIFICATE IN PROGRESS

Attach listings of Degree and/or Certificate Programs showing this course as a required or a restricted elective.)

23. Enrollment - Estimate Enrollment

First Year: 15
Third Year: 25

24. Resources - Faculty - Discipline and Other Qualifications:

- a. Sufficient Faculty Resources: Yes
b. If No, list number of FTE needed to offer this course: N/A

25. Additional Equipment and/or Supplies Needed and Source of Funding.

N/A

26. Additional Construction or Modification of Existing Classroom Space Needed. (*Explain:*)

N/A

27. FOR NEW OR SUBSTANTIALLY MODIFIED COURSES

Library and/or Learning Resources Present in the Collection are Sufficient to Meet the Need of the Students Enrolled in the Course: Yes

28. Originator George Brown Origination Date 10/12/16