

Washtenaw Community College Comprehensive Report

UAT 128 Troubleshooting Residential HVACR Systems (UA 6061) Effective Term: Fall 2020

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: United Association Department

Discipline: United Association Training

Course Number: 128

Org Number: 28200

Full Course Title: Troubleshooting Residential HVACR Systems (UA 6061)

Transcript Title: Trblshoot Resident HVACR 6061

Is Consultation with other department(s) required: No

Publish in the Following: College Catalog

Reason for Submission: Course Change

Change Information:

Consultation with all departments affected by this course is required.

Course description

Outcomes/Assessment

Objectives/Evaluation

Rationale: Update United Association course

Proposed Start Semester: Fall 2020

Course Description: In this course, students will identify proper installation, start-up, and commissioning of a residential Heating, Ventilation, Air Conditioning, and Refrigeration (HVACR) systems. Students will also apply both a classroom and hands-on approach to testing and troubleshooting new and existing systems for proper operation. They will review instructional resources and activities that can be applied at their local Training Center. 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 purpose, function, and process of components of a residential HVACR system.

Assessment 1

Assessment Tool: Outcome-related multiple-choice exam questions

Assessment Date: Fall 2020

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 80% or higher.

Who will score and analyze the data: U.A. instructors

2. Demonstrate safe testing, maintenance and proper start-up and commissioning of a residential HVACR system.

Assessment 1

Assessment Tool: Skills demonstration

Assessment Date: Fall 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Skills 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

3. Demonstrate troubleshooting techniques of new or existing residential HVACR system with predetermined faults.

Assessment 1

Assessment Tool: Skills demonstration

Assessment Date: Fall 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Skills 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. Compare and contrast residential HVACR systems prior to 2000 to the present day.
2. Identify sequence of operation and normal operating parameters (with location measurements) of different HVACR systems.
3. Identify the enthalpy chart and its purpose in HVACR systems.
4. Troubleshoot trainers to recognize both the cause and the solution of HVACR system faults.
5. Review customer service etiquette used when performing troubleshooting techniques.

6. Review safety procedures and Personal Protection Equipment (PPE) when troubleshooting HVACR equipment.
7. List HVACR system components and processes.
8. Describe the purpose and function of HVACR system components.
9. Evaluate the installation of a residential HVACR system.
10. Identify and use testing equipment to measure air flow, gas pressures, and electrical voltages in an HVACR system.
11. Safely remove and install refrigerant in an HVACR system.
12. Complete start-up and commissioning reports for an HVACR system.
13. Discuss best practices of evaluation techniques.
14. Locate and navigate online resources for additional HVACR information that can be used at the student's local Training Center.

New Resources for Course

Course Textbooks/Resources

Textbooks

Ronnie J. Auwill. *HVAC and Refrigeration Systems*, 1st ed. ATP, 2014

Manuals

Periodicals

Software

Equipment/Facilities

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Tony Esposito</i>	<i>Faculty Preparer</i>	<i>May 20, 2020</i>
Department Chair/Area Director: <i>Marilyn Donham</i>	<i>Recommend Approval</i>	<i>May 20, 2020</i>
Dean: <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>May 27, 2020</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Jun 19, 2020</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Jun 23, 2020</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Jul 06, 2020</i>