

Washtenaw Community College Comprehensive Report

UAT 206 Commercial Refrigeration and Supermarket Applications (UA 6002) Effective Term: Fall 2020

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: United Association Department

Discipline: United Association Training

Course Number: 206

Org Number: 28200

Full Course Title: Commercial Refrigeration and Supermarket Applications (UA 6002)

Transcript Title: Com Refr-Supermarket Apps 6002

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 examine emerging technologies in the commercial and industrial refrigeration fields. Students will study system components and operations of building automation systems for supermarket applications, as well as secondary fluid systems, compound/cascade refrigeration, and natural refrigerants. There will be hands-on demonstrations for students to identify installation and operation of these components and systems. The title of this course was previously Improvement of Technical and Professional Relationship Skills for Supermarket Applications (UA 6002). 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 science behind the commercial/industrial refrigeration cycle, its components and operation.

Assessment 1

Assessment Tool: Outcome-related written 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. Analyze the design, modification, costs and the return on investment (ROI) when retrofitting a newer, advanced refrigeration system.

Assessment 1

Assessment Tool: Oral quiz

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: Rubric

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 the technology available in the refrigeration industry today to the technology available prior to 2005.
2. Recognize the increase in alternative energy and refrigerant applications in today's supermarket industry.
3. Compare and contrast the use of natural refrigerants, refrigerant management, energy management, and controls.
4. Identify and recognize the operation and maintenance of compressor racks and their sub-systems.
5. Analyze the relationship between the contractor and supermarket owner to improve the quality of contracts and skilled labor.
6. Identify main components of a refrigeration system.
7. Identify the differences between compound and cascade refrigeration systems.
8. Compare and contrast a subcritical and transcritical CO₂ system.
9. Recognize the various types of building automation systems.
10. Discuss the costs needed to adapt to existing refrigeration systems to updated systems, including the return on investment and operational savings.

New Resources for Course

Course Textbooks/Resources

Textbooks

International Association of Plumbing and Mechanical Officials. *Controls for UA Journeyworkers and Apprentices*, ed. IAPMO Group, 2006

Manuals

United Association. Refrigeration Mechanical Equipment Service Manual, United Association, 11-20-1995

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 01, 2020</i>
Department Chair/Area Director: <i>Marilyn Donham</i>	<i>Recommend Approval</i>	<i>May 07, 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>Jul 23, 2020</i>
Assessment Committee Chair: <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Aug 25, 2020</i>
Vice President for Instruction: <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Aug 26, 2020</i>