

## Washtenaw Community College Comprehensive Report

### HVA 207 Commercial Industry Standards with Competency Exams Effective Term: Fall 2022

#### Course Cover

**College:** Advanced Technologies and Public Service Careers

**Division:** Advanced Technologies and Public Service Careers

**Department:** Heating, Ventilation and A/C

**Discipline:** Heating, Ventilation, Air Conditioning and Refrigeration

**Course Number:** 207

**Org Number:** 14750

**Full Course Title:** Commercial Industry Standards with Competency Exams

**Transcript Title:** Comm Industry Stand w/Comp Exm

**Is Consultation with other department(s) required:** No

**Publish in the Following:** College Catalog , Time Schedule , Web Page

**Reason for Submission:** Three Year Review / Assessment Report

**Change Information:**

**Consultation with all departments affected by this course is required.**

**Course description**

**Outcomes/Assessment**

**Objectives/Evaluation**

**Rationale:** Updating the master syllabus after assessing the course.

**Proposed Start Semester:** Winter 2023

**Course Description:** In this course, students will learn the relevant codes to commercial heating, ventilation, air conditioning and refrigeration systems. Other topics include commercial air conditioning and refrigeration installation requirements, proper operating conditions and servicing requirements. Students will have the opportunity to take nationally recognized competency exams.

#### Course Credit Hours

**Variable hours:** No

**Credits:** 3

**Lecture Hours: Instructor:** 45 **Student:** 45

**Lab: Instructor:** 15 **Student:** 15

**Clinical: Instructor:** 0 **Student:** 0

**Total Contact Hours: Instructor:** 60 **Student:** 60

**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

Level 3

#### Requisites

**Prerequisite**

HVA 203 minimum grade "C"

and

**Prerequisite**

HVA 205 minimum grade "C"

**General Education****Request Course Transfer****Proposed For:**

Eastern Michigan University

Ferris State University

**Student Learning Outcomes**

1. Identify the Michigan Mechanical Code and International Fuel Gas Code used when servicing and installing HVAC equipment.

**Assessment 1**

Assessment Tool: Outcome-related exam questions.

Assessment Date: Winter 2023

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: 70% of students will score 70% or higher

Who will score and analyze the data: Department faculty

2. Identify commercial refrigeration, commercial air conditioning and residential low pressure hydronic heat systems.

**Assessment 1**

Assessment Tool: Outcome-related ESCO preparatory exam questions.

Assessment Date: Winter 2023

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: 70% of students will score 70% or higher

Who will score and analyze the data: Department faculty

**Assessment 2**

Assessment Tool: ESCO Certification Exam

Assessment Date: Winter 2023

Assessment Cycle: Every Three Years

Course section(s)/other population: All sections

Number students to be assessed: All students

How the assessment will be scored: The ESCO exam is a 3rd party exam that is scored by the vendor. Scores are reported based on the percentage of questions answered correctly.

Standard of success to be used for this assessment: 70% of the students will earn a passing score (70% when proctored, 84% when taken online).

Who will score and analyze the data: Departmental faculty

**Course Objectives**

1. Identify the International Fuel Gas Codes for the installation of commercial HVAC equipment.
2. Solve required calculations necessary for safe and legal HVAC equipment installation using the Michigan Mechanical Code and the International Fuel Gas Code.
3. Solve required calculations for proper fuel line and chimney sizing.

4. Review elements of air conditioning in preparation for ESCO test.
5. Review elements of commercial refrigeration in preparation for ESCO test.
6. Review elements of hydronic heating in preparation for ESCO test.
7. Discuss ESCO certification to increase employment opportunities.
8. Identify the Michigan Mechanical Code's for the installation of commercial HVAC equipment.

## **New Resources for Course**

### **Course Textbooks/Resources**

#### Textbooks

Whitman, B.. *Refrigeration and Air Conditioning Technology*, 7 ed. Delmar, 2013, ISBN: 9781111644475.

#### Manuals

AGA. International Fuel Gas Code, International code council, 01-01-2012

MMC. Michigan Mechanical Code, Internatinal Code Council, 01-01-2012

#### Periodicals

#### Software

### **Equipment/Facilities**

Level III classroom

<b><u>Reviewer</u></b>	<b><u>Action</u></b>	<b><u>Date</u></b>
<b>Faculty Preparer:</b> <i>Robert Carter</i>	<i>Faculty Preparer</i>	<i>Nov 05, 2021</i>
<b>Department Chair/Area Director:</b> <i>Brian Martindale</i>	<i>Recommend Approval</i>	<i>Nov 17, 2021</i>
<b>Dean:</b> <i>Jimmie Baber</i>	<i>Recommend Approval</i>	<i>Nov 22, 2021</i>
<b>Curriculum Committee Chair:</b> <i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Mar 22, 2022</i>
<b>Assessment Committee Chair:</b> <i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Mar 28, 2022</i>
<b>Vice President for Instruction:</b> <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Apr 05, 2022</i>

## Washtenaw Community College Comprehensive Report

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#### Course Cover

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**Department:** Heating, Ventilation and A/C  
**Discipline:** Heating, Ventilation, Air Conditioning and Refrigeration  
**Course Number:** 207  
**Org Number:** 14750  
**Full Course Title:** Commercial Industry Standards with Competency Exams  
**Transcript Title:** Comm Industry Stand w/Comp Exm  
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**Publish in the Following:** College Catalog , Time Schedule , Web Page  
**Reason for Submission:** Three Year Review / Assessment Report  
**Change Information:**  
    **Consultation with all departments affected by this course is required.**  
    **Outcomes/Assessment**  
    **Objectives/Evaluation**  
    **Other:**  
**Rationale:** Review syllabus  
**Proposed Start Semester:** Winter 2018  
**Course Description:** In this course, students will learn the relevant codes to commercial heating, ventilation, air conditioning and refrigeration systems. Other topics include commercial air conditioning and refrigeration installation requirements, proper operating conditions and servicing requirements. Students will take nationally recognized competency exams.

#### Course Credit Hours

**Variable hours:** No  
**Credits:** 3  
**Lecture Hours: Instructor:** 45 **Student:** 45  
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#### College-Level Reading and Writing

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#### College-Level Math

Level 3

## **Requisites**

### **Prerequisite**

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### **Prerequisite**

HVA 205 minimum grade "C"

## **General Education**

## **Request Course Transfer**

### **Proposed For:**

Eastern Michigan University

Ferris State University

## **Student Learning Outcomes**

1. Identify the Michigan Mechanical Code and International Fuel Gas Code used when servicing and installing HVAC equipment.

### **Assessment 1**

Assessment Tool: Departmental final exam will be used to assess understanding of key concepts

Assessment Date: Winter 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: A minimum of 70% of students should achieve a score of 70% or higher

Who will score and analyze the data: Department faculty

2. Identify commercial refrigeration, commercial air conditioning and residential low pressure hydronic heat systems.

### **Assessment 1**

Assessment Tool: The ESCO Institute's commercial air conditioning, commercial refrigeration and residential low pressure hydronic heat competency test

Assessment Date: Winter 2019

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: ESCO electronic scoring

Standard of success to be used for this assessment: A minimum of 70% of students should achieve a score of 70% or higher

Who will score and analyze the data: ESCO electronic scoring system

## **Course Objectives**

1. Identify the International Fuel Gas Code and Michigan Mechanical Code's connection to the installation of commercial HVAC equipment.
2. Solve required calculations necessary for safe and legal HVAC equipment installation using the

- Michigan Mechanical Code and the International Fuel Gas Code.
3. Solve required calculations for proper fuel line and chimney sizing.
  4. Review elements of air conditioning in preparation for ESCO test.
  5. Review elements of commercial refrigeration in preparation for ESCO test.
  6. Review elements of hydronic heating in preparation for ESCO test.

### New Resources for Course

#### Course Textbooks/Resources

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##### Manuals

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MMC. Michigan Mechanical Code, Internatinal Code Council, 01-01-2012

##### Periodicals

##### Software

#### Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
<b>Faculty Preparer:</b> <i>Michael Kontry</i>	<i>Faculty Preparer</i>	<i>Apr 11, 2017</i>
<b>Department Chair/Area Director:</b> <i>Robert Carter</i>	<i>Recommend Approval</i>	<i>Jun 08, 2017</i>
<b>Dean:</b> <i>Brandon Tucker</i>	<i>Recommend Approval</i>	<i>Jun 21, 2017</i>
<b>Curriculum Committee Chair:</b> <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Sep 18, 2017</i>
<b>Assessment Committee Chair:</b> <i>Michelle Garey</i>	<i>Recommend Approval</i>	<i>Sep 19, 2017</i>
<b>Vice President for Instruction:</b> <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Sep 24, 2017</i>