

Washtenaw Community College Comprehensive Report

HVA 201 Energy Audits Effective Term: Winter 2018

Course Cover

Division: Advanced Technologies and Public Service Careers

Department: Heating, Ventilation and A/C

Discipline: Heating, Ventilation, Air Conditioning and Refrigeration

Course Number: 201

Org Number: 14750

Full Course Title: Energy Audits

Transcript Title: Energy Audits

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

Other:

Rationale: Review syllabus

Proposed Start Semester: Winter 2018

Course Description: This course prepares students to conduct an energy audit on residential, commercial, industrial structures and HVAC systems. Students gain an understanding of the current energy, building, and HVAC standards put out by organizations such as ASHRAE and the U.S. Green Building Council's "LEED" program. Students will also be introduced to topics such as commissioning, ducts loss, building air infiltration, heat recovery, thermal storage and energy waste elimination.

Course Credit Hours

Variable hours: No

Credits: 4

Lecture Hours: Instructor: 45 Student: 45

Lab: Instructor: 45 Student: 45

Clinical: Instructor: 0 Student: 0

Total Contact Hours: Instructor: 90 Student: 90

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

Prerequisite

HVA 101 minimum grade "C"
and

Prerequisite

HVA 103 minimum grade "C"

General Education

Request Course Transfer

Proposed For:

Eastern Michigan University
Ferris State University

Student Learning Outcomes

1. Identify energy efficiency standards as they pertain to energy auditing.

Assessment 1

Assessment Tool: Departmental multiple-choice final.

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: 70% of the students will score an overall average of 70% or higher.

Who will score and analyze the data: Departmental faculty.

2. Identify mechanical, electrical and building equipment that can be used or recommended to building owners to increase overall building efficiency.

Assessment 1

Assessment Tool: Departmental multiple-choice final.

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: 70% of the students will score an overall average of 70% or higher.

Who will score and analyze the data: Departmental faculty.

3. Perform efficiency evaluations of thermal delivery systems.

Assessment 1

Assessment Tool: System Checklist

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: Departmentally-developed rubric.

Standard of success to be used for this assessment: 70% of the students will score an overall average of 70% or higher.

Who will score and analyze the data: Departmental faculty.

Course Objectives

1. Recognize key points of ASHRAE Standard 62.
2. Recognize key points of ASHRAE Standard 90.
3. Recognize key points of USGBC LEED Standards.
4. Select light fixtures that will provide the best energy savings while providing adequate lighting.
5. Recognize the differences between heat pump, fossil fuel and electrical HVAC systems.
6. Predict energy losses in buildings using thermal imaging.
7. Identify thermal delivery systems that can be used to increase overall efficiencies.
8. Identify new green technologies and their applications.
9. Design an energy policy for a new or existing structure.
10. Recognize the commissioning process and how it relates to energy auditing.
11. Measure the amount of duct loss and air infiltration.

New Resources for Course

Course Textbooks/Resources

Textbooks

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

Rude, A., Rude, J.. *Introduction to Energy Auditing: CSI Your Home*, 1 ed. Chief Enterprises, 2011, ISBN: 9780615663258.

Manuals

Periodicals

Software

Equipment/Facilities

Level III classroom

<u>Reviewer</u>	<u>Action</u>	<u>Date</u>
Faculty Preparer: <i>Michael Kontry</i>	<i>Faculty Preparer</i>	<i>Apr 13, 2017</i>
Department Chair/Area Director: <i>Robert Carter</i>	<i>Recommend Approval</i>	<i>Apr 17, 2017</i>
Dean: <i>Brandon Tucker</i>	<i>Recommend Approval</i>	<i>Apr 18, 2017</i>
Curriculum Committee Chair: <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Aug 31, 2017</i>
Assessment Committee Chair: <i>Michelle Garey</i>	<i>Recommend Approval</i>	<i>Sep 06, 2017</i>
Vice President for Instruction:		

Kimberly Hurns

Approve

Sep 07, 2017