Washtenaw Community College Comprehensive Report

UAT 156 Commercial and Residential Boiler Service (UA 6063)
Effective Term: Fall 2020

Course Cover

Division: Advanced Technologies and Public Service Careers
Department: United Association Department
Discipline: United Association Training
Course Number: 156
Org Number: 28200
Full Course Title: Commercial and Residential Boiler Service (UA 6063)
Transcript Title: Boiler Service 6063
Is Consultation with other department(s) required: No
Publish in the Following:
Reason for Submission: New Course
Change Information:
Rationale: New United Association course
Proposed Start Semester: Fall 2020
Course Description: In this course, students will identify proper installation and service requirements of standard and high efficiency boilers in both the commercial and residential markets. Students will differentiate types of boiler designs, applications, and piping systems, including the modifications needed for replacing older boilers with new condensing types. Students will also identify various controls, read schematics, as well as perform basic combustion and troubleshooting skills. 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 boiler types, systems, and components used in the industry.
   Assessment 1
   Assessment Tool: Outcome-related 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. Determine the proper installation and service requirements for various types of boiler systems.
   Assessment 1
   Assessment Tool: Outcome-related 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

3. Identify boiler system components and electrical controls through use of schematics and blueprints.
   Assessment 1
   Assessment Tool: 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: Observation 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

4. Demonstrate proper use of testing equipment for boiler operation.
   Assessment 1
   Assessment Tool: 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: Observation 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. Examine the construction of cast iron, fire tube, and water tube boilers.
2. Review the purposes, applications, and uses of boilers throughout history.
3. Compare and contrast the differences in efficiency of various boiler systems as well as the need for high efficiency in the current industry.
4. Compare and contrast the components, including electrical and mechanical, needed for various boiler system operations.
5. Discuss the safety precautions when operating boiler systems.
6. Review past piping practices and sizing of boiler systems.
7. Discuss current piping requirements of high efficiency boiler systems.
8. Discuss piping modifications required when updating existing systems to higher efficiency systems.
9. Review electrical symbols and safety for schematic diagram reading.
10. Identify controls and electrical components from various boiler using schematic drawings.
11. List preventative maintenance procedures for various boiler systems.
12. Use testing equipment including voltmeter to troubleshoot predetermined faults on boilers.
13. Discuss combustion theory, perform combustion analysis, and record results when operating a boiler.

New Resources for Course

Course Textbooks/Resources

Textbooks

UA Members . *Hydronic Heating and Cooling* , 1st ed. Upper Marlboro, Maryland: American Technical Publishers , 2016

UA Members. *Steam Systems* , 1st ed. Upper Marlboro, Maryland: American Technical Publishers, 2019

Manuals

Periodicals

Software

Equipment/Facilities

Reviewer	Action	Date
Faculty Preparer:		
Tony Esposito	*Faculty Preparer*	*Apr 01, 2020*
Department Chair/Area Director:		
Marilyn Donham	*Recommend Approval*	*Apr 06, 2020*
Dean:		
Jimmie Baber	*Recommend Approval*	*Apr 13, 2020*
Curriculum Committee Chair:		
Lisa Veasey	*Recommend Approval*	*Apr 23, 2020*
Assessment Committee Chair:		
Shawn Deron	*Recommend Approval*	*Apr 28, 2020*
Vice President for Instruction:		
Kimberly Hurns	*Approve*	*May 05, 2020*