

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Heating, Ventilation, Air Conditioning and Refrigeration	205	HVA 205 09/29/2016-Hydronic Systems
Division	Department	Faculty Preparer
Advanced Technologies and Public Service Careers	Heating, Ventilation and A/C	Robert Carter
Date of Last Filed Assessment Report		

I. Assessment Results per Student Learning Outcome

Outcome 1: Identify hydronic systems.

- Assessment Plan
 - Assessment Tool: multiple choice test
 - Assessment Date: Fall 2011
 - Course section(s)/other population: all
 - Number students to be assessed: all
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2014, 2015, 2013		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
38	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Student from fall of 2015 did not take final exam.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students selected.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Multiple-choice questions from the final exam related to the outcome using an answer key.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes

87.2% of the students scored correctly on this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students displayed an accurate understanding of hydronic piping systems.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

We will continue to emphasize the importance of proper hydronic system piping identification.

Outcome 2: Identify hydronic system components.

- Assessment Plan
 - Assessment Tool: multiple choice test
 - Assessment Date: Fall 2011
 - Course section(s)/other population: all
 - Number students to be assessed: all
 - How the assessment will be scored:

- Standard of success to be used for this assessment:
- Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2015, 2014, 2013		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
38	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

One student did not take final exam.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students selected.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Multiple-choice questions from final exam related to outcome using an answer key.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
94.1% of the students scored correctly on this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students did very well identifying hydronic system components.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Some steam system operation controls could use more discussion.

Outcome 3: Design a residential hydronic heating system using correct methods.

- Assessment Plan
 - Assessment Tool: student project
 - Assessment Date: Fall 2011
 - Course section(s)/other population: all
 - Number students to be assessed: all
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
2015, 2014, 2013		

2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
38	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Student from fall of 2015 did not complete student project.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All student selected

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Students demonstrate ability to wire various hydronic zone valve applications and operation.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
95.4% of the students scored correctly on this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students showed a high level of the skill needed to wire correctly wire various hydronic zoning systems.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

Continue to emphasize the wiring of various hydronic systems.

Outcome 4: Troubleshoot basic hydronic system components.

- Assessment Plan
 - Assessment Tool: skill assessment
 - Assessment Date: Fall 2011
 - Course section(s)/other population: all
 - Number students to be assessed: all
 - How the assessment will be scored:
 - Standard of success to be used for this assessment:
 - Who will score and analyze the data:

1. Indicate the Semester(s) and year(s) assessment data were collected for this report.

Fall (indicate years below)	Winter (indicate years below)	SP/SU (indicate years below)
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2015, 2014, 2013		
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2. Provide assessment sample size data in the table below.

# of students enrolled	# of students assessed
38	37

3. If the number of students assessed differs from the number of students enrolled, please explain why all enrolled students were not assessed, e.g. absence, withdrawal, or did not complete activity.

Student from fall of 2015 did not take final.

4. Describe how students from all populations (day students on campus, DL, MM, evening, extension center sites, etc.) were included in the assessment based on your selection criteria.

All students selected.

5. Describe the process used to assess this outcome. Include a brief description of this tool and how it was scored.

Multiple-choice questions from the final exam related to the outcome using an answer key.

6. Briefly describe assessment results based on data collected for this outcome and tool during the course assessment. Discuss the extent to which students achieved this learning outcome and indicate whether the standard of success was met for this outcome and tool.

Met Standard of Success: Yes
89.2% of the students scored correctly on this outcome.

7. Based on your interpretation of the assessment results, describe the areas of strength in student achievement of this learning outcome.

Students showed a very good understanding of troubleshooting hydronic systems.

8. Based on your analysis of student performance, discuss the areas in which student achievement of this learning outcome could be improved. If student met standard of success, you may wish to identify your plans for continuous improvement.

A little more time should be spent on steam system trouble shooting.

II. Course Summary and Action Plans Based on Assessment Results

1. Describe your overall impression of how this course is meeting the needs of students. Did the assessment process bring to light anything about student achievement of learning outcomes that surprised you?

The outcomes used to assess the goals for this class exceed the expectation set out for the standard of success.

Overall, the assessment process results showed positive results.

2. Describe when and how this information, including the action plan, was or will be shared with Departmental Faculty.

All instructors of the HVA 205 class will be verbally informed of these results in a department meeting.

3. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
No changes intended.			

4. Is there anything that you would like to mention that was not already captured?

No

III. Attached Files

[HVA 205 Data](#)

Faculty/Preparer: Robert Carter **Date:** 11/22/2016

Department Chair: Robert Carter **Date:** 11/22/2016

Dean: Brandon Tucker **Date:** 11/24/2016

Assessment Committee Chair: Ruth Walsh **Date:** 01/29/2017

COURSE ASSESSMENT REPORT

I. Background Information

1. Course assessed:
 Course Discipline Code and Number: HVA 205
 Course Title: Hydronic Systems
 Division/Department Codes: Vocational Technology/WAF

2. Semester assessment was conducted (check one):
 Fall 2008 ___
 Winter 20___
 Spring/Summer 20__

3. Assessment tool(s) used: check all that apply.
 Portfolio
 Standardized test
 Other external certification/licensure exam (specify):
 Survey
 Prompt
 Departmental exam
 Capstone experience (specify):
 Other (specify):

4. Have these tools been used before?
 Yes
 No

If yes, have the tools been altered since its last administration? If so, briefly describe changes made.

5. Indicate the number of students assessed/total number of students enrolled in the course.

All students taking departmental exam were assessed. 15 of 15

6. Describe how students were selected for the assessment.

All students completing the final exam for HVA 205 courses were assessed.

II. Results

1. Briefly describe the changes that were implemented in the course as a result of the previous assessment.

No previous assessment was conducted

2. List each outcome that was assessed for this report exactly as it is stated on the course master syllabus.

A. Identify hydronic systems.

B. Identify hydronic system components.

C. Design a residential hydronic heating system using correct methods.

D. Troubleshoot basic hydronic system components.

3. Briefly describe assessment results based on data collected during the course assessment, demonstrating the extent to which students are achieving each of the learning outcomes listed above. *Please attach a summary of the data collected.*

Students met the standard of success in all of the above listed outcomes.

COURSE ASSESSMENT REPORT

4. For each outcome assessed, indicate the standard of success used, and the percentage of students who achieved that level of success. *Please attach the rubric/scoring guide used for the assessment.*
 70% of students will achieve an overall average of 70% or higher on outcome questions.

Percentage of comprehension for objectives 1-4			
1	2	3	4
76%	88%	80%	80%

5. Describe the areas of strength and weakness in students' achievement of the learning outcomes shown in assessment results.

Strengths:

Students were strongest in ability to identify hydronic system components.

Weaknesses:

Outcome 1 question: 21- About open loop system expansion tanks.

Outcome 2 question: 47- About full reset.

Outcome 3 question: 25- About average efficiency.

Outcome 4 question: 45- About reset ratio.

III. Changes influenced by assessment results

1. If weaknesses were found (see above) or students did not meet expectations, describe the action that will be taken to address these weaknesses.

To achieve a higher level of student comprehension of reset controllers and expansion tank requirements, and spend more time on the subject matter with visual aids.

Question 25 needs to be re-worded to be specific to natural gas.

2. Identify intended changes that will be instituted based on results of this assessment activity (check all that apply). Please describe changes and give rationale for change.

- a. Outcomes/Assessments on the Master Syllabus

Change/rationale: **Reword the question.**

- b. Objectives/Evaluation on the Master Syllabus

Change/rationale:

- c. Course pre-requisites on the Master Syllabus

Change/rationale:

- d. 1st Day Handouts

Change/rationale:

- e. Course assignments

Change/rationale:

- f. Course materials (check all that apply)

Textbook

Handouts

Other:

- g. Instructional methods

Change/rationale:

COURSE ASSESSMENT REPORT

- h. Individual lessons & activities
Change/rationale:

3. What is the timeline for implementing these actions? Fall 2009

IV. Future plans

1. Describe the extent to which the assessment tools used were effective in measuring student achievement of learning outcomes for this course.
The use of a standardized departmental exam made assessing all students equally easy and effective.

2. If the assessment tools were not effective, describe the changes that will be made for future assessments.

3. Which outcomes from the master syllabus have been addressed in this report?

All x Selected

If "All", provide the report date for the next full review:

 2011

If "Selected", provide the report date for remaining outcomes: _____

Submitted by:

Print: Dan Lawrence Faculty/Preparer	Signature: <u>[Signature]</u>	Date: <u>1-8-09</u>
Print: <u>L Pullins</u> Department Chair	Signature: <u>[Signature]</u>	Date: <u>4/7/09</u>
Print: Bruce Greene Dean/Administrator	Signature: <u>[Signature]</u>	Date: <u>1-12-09</u>