Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Heating, Ventilation, Air Conditioning and Refrigeration	205	HVA 205 07/19/2023-Hydronic Systems
College	Division	Department
Advanced Technologies and Public Service Careers	Advanced Technologies and Public Service Careers	Heating, Ventilation and A/C
Faculty Preparer		Robert Carter
Date of Last Filed Assessment Report		

I. Review previous assessment reports submitted for this course and provide the following information.

1. Was this course previously assessed and if so, when?

   Yes

   Through Fall 2015.

2. Briefly describe the results of previous assessment report(s).

   Students met the standard of success for all four outcomes.

3. Briefly describe the Action Plan/Intended Changes from the previous report(s), when and how changes were implemented.

   There were no intended changes listed. However, there were areas for improvement in student learning that were listed in Outcomes 2-4:

   Outcome 2: Some steam system operation controls could use more discussion.

   Outcome 3: Continue to emphasize the wiring of various hydronic systems.

   Outcome 4: The previous assessment showed that a little more hands-on troubleshooting of the steam system would be valuable for student success.

II. Assessment Results per Student Learning Outcome

Outcome 1: Identify hydronic systems.

- Assessment Plan

- Assessment Tool: Departmental final exam will be used to assess understanding of key concepts
- Assessment Date: Winter 2020
- 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 the students should achieve a score of 70% or higher
- Who will score and analyze the data: Departmental faculty

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)
2022, 2021		

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

# of students enrolled	# of students assessed
21	21

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.

All students were assessed.

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 sections were face-to-face and taught in the evening.

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

This outcome was assessed using multiple-choice questions from the final exam related to the outcome and scored with 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
71% of students (15/21) scored 70% or higher on the outcome-related questions, meeting the standard of success. Fall 2022: 8/10 students met the standard of success. Fall 2021: 7/11 students met the standard of success.

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 existing hydronic piping systems and are adapting to the new applications of infloor radiant 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 continue to stress that proper piping configurations of hydronic systems are important for system operation and consumer comfort.

Outcome 2: Identify hydronic system components.

- Assessment Plan
    - Assessment Tool: Departmental final exam will be used to assess understanding of key concepts
    - Assessment Date: Winter 2020
    - 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 the students should achieve a score of 70% or higher
    - Who will score and analyze the data: Departmental faculty

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)
2022, 2021		

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

# of students enrolled	# of students assessed
21	21

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.

All students were assessed.

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 sections were face-to-face and taught in the evening.

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

This outcome was assessed using multiple-choice questions from the final exam related to the outcome and scored with 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
95% of students (20/21) scored 70% or higher on the outcome-related questions, meeting the standard of success. Fall 2022: 10/10 students met the standard of success. Fall 2021: 10/11 students met the standard of success.

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

Student strengths included the ability to identify hydronic system components as well as how each safety and operation control component affects the proper functioning of the hydronic system.

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.

Students consistently perform well on skills assessed in this outcome. We will continue to incorporate newer technology that has been added to the field into class discussions (e.g. tankless water systems and infloor radiant).

Outcome 3: Demonstrate proper wiring of hydronic zoning systems.

- Assessment Plan
    - Assessment Tool: Student project
    - Assessment Date: Winter 2020
    - 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: A minimum of 70% of the students should achieve a score of 70% or higher
    - Who will score and analyze the data: Departmental faculty

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)
2022, 2021		

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

# of students enrolled	# of students assessed
21	21

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.

All students were assessed.

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 sections were face-to-face and taught in the evening.

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

The assessment plan lists a student project as the assessment tool for this outcome. Students do have the opportunity to complete eight wiring projects during lab time; however, not all students complete the same wiring projects depending on time constraints (some students wire faster than others). The wiring diagram described below is an assessment tool completed by all students. This outcome was assessed using multiple-choice questions from the final exam related to the outcome and scored with an answer key. The final exam questions related to this outcome provide a diagram of components that must be wired correctly to operate a heat motor or a 24-volt driven motor zone valve that is controlled by a thermostat and sends a signal to the boiler aquastat relay which energizes the pump and the burner circuits (see attached diagram).

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
90% of students (19/21) scored 70% or higher on the outcome-related questions, meeting the standard of success. Fall 2022: 10/10 students met the standard of success. Fall 2021: 9/11 students met the standard of success.

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

Students demonstrated field-level skills needed to wire various hydronic zoning systems according to industry standards.

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 use manufacturer wiring diagrams and any new components brought into the industry to provide with students with up-to-date skills to wire correctly into a system.

Outcome 4: Troubleshoot basic hydronic system components.

- Assessment Plan
    - Assessment Tool: Departmental final exam will be used to assess understanding of key concepts
    - Assessment Date: Winter 2020
    - 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 the students should achieve a score of 70% or higher
    - Who will score and analyze the data: Departmental faculty

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)
2022, 2021		

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

# of students enrolled	# of students assessed
21	21

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.

All students were assessed.

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 sections were face-to-face and taught in the evening.

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

This outcome was assessed using multiple-choice questions from the final exam related to the outcome and scored with 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
71% of students (15/21) scored 70% or higher on the outcome-related questions, meeting the standard of success. Fall 2022: 7/10 students met the standard of success. Fall 2021: 8/11 students met the standard of success.

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

Through labs, students identify and learn the purpose of components related to proper operation of a hydronic system. The hands-on practice and simulated field situations are used to allow students to apply theoretical knowledge to demonstrate their diagnostic skills and use correct service practices.

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 update existing labs to enhance the students' ability to service newer designs of equipment.

III. Course Summary and Intended Changes Based on Assessment Results

1. Based on the previous report's Intended Change(s) identified in Section I above, please discuss how effective the changes were in improving student learning.

Outcome 2: Greater detail has been added to the lectures explaining the different steam components, their operation and necessity for correct sequence operation. Outcome 3: Students are applying wiring theory to the labs to change various configurations.

Outcome 4: The previous assessment showed that more hands-on troubleshooting of the steam system would be valuable for student success. Students are now removing and replacing parts according to system problems.

2. 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 overall performance of the students is above expectation, as students met the standard of success for all outcomes. The level of understanding has improved from the previous assessment.

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

This report will be shared at the next department meeting with all HVA instructors.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Assessment Tool	We will need to ensure all students complete one of the eight potential wiring projects to be able to collect lab-related assessment data for Outcome 3.	We had to use an alternate assessment tool for the current assessment, but we'd like to incorporate hands-on assessment data from these lab projects for future assessment.	2023
Course Materials (e.g. textbooks, handouts, on-line ancillaries)	Outcome 1: Continue to emphasize the importance of proper piping configurations of hydronic systems. Outcome 2: Continue to incorporate newer	Continuous improvement	2023

	technology into class discussions. Outcome 3: Continue to use manufacturer wiring diagrams and any new components brought into the industry to provide students with up-to-date wiring skills. Outcome 4: Continue to update existing labs to enhance the students' ability to service newer designs of equipment		

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

Fall 2020 data should have been included in this assessment. Due to multiple issues with Blackboard recovering data and producing reports with the tools aligned with the Goals Tool, I was not able to include this data in the current assessment.

III. Attached Files

oc4-f22-hva-205
oc1-f21-hva-205
oc2-f21-hva-205
oc2-f22-hva-205
oc3-f21-hva-205
oc1-f22-hva-205
oc3-f22-hva-205
oc4-f21-hva-205
HVA 205 Assessment Data
Bell & Gossett Wiring

Faculty/Preparer:	Robert Carter	**Date:** 08/04/2023
Department Chair:	Brian Martindale	**Date:** 08/08/2023
Dean:	Jimmie Baber	**Date:** 08/09/2023

Assessment Committee Chair: Jessica Hale **Date:** 12/11/2023

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)

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 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):
   x 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
   x Departmental exam
   ☐ Capstone experience (specify):
   ☐ Other (specify):

4. Have these tools been used before?
   ☐ Yes
   x 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.

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:

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** Dan Lawrence **Date:** 1-8-09

Print: L Pullins Department Chair **Signature** L Pullins **Date:** 4/7/09

Print: Bruce Greene Dean/Administrator **Signature** Bruce Greene **Date:** 1-12-09

logged 4/10/09 sjr

Approved by the Assessment Committee 11//08