Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Welding and Fabrication	126	WAF 126 06/08/2023-Introduction to Welding Processes II
College	Division	Department
Advanced Technologies and Public Service Careers	Advanced Technologies and Public Service Careers	Welding and Fabrication
Faculty Preparer		Alexander Pazkowski
Date of Last Filed Assessment Report		01/09/2024

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 Spring/Summer 2021

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

The standard of success was not met for any of the outcomes. Outcome 1: 64% of students (7/11) met the standard of success. Students struggled with recognizing American Welding Society (AWS) electrode designations, weldment numerical positions, and safety gear. Outcome 2: 73% of students (8/11) met the standard of success. Students struggled with recalling selecting techniques and positions for specific electrode classifications, proper polarities per electrode, and usable amperage ranges per electrode. This information was available on lectures and PowerPoints. Outcome 3, 4, 5: 79% of students (11/14) met the standard of success.

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

The action plan included suggestions for tracking student completions at the end of lab sessions to improve analysis of the assessment data. We updated our data collection methods after the assessment below and will implement for the next assessment.

II. Assessment Results per Student Learning Outcome

Outcome 1: Recognize and apply welding vocabulary.

- Assessment Plan
    - Assessment Tool: Outcome-related questions on the written exam
    - Assessment Date: Fall 2024
    - 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 students will score 80% 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	

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

# of students enrolled	# of students assessed
47	39

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.

39 students were assessed based on the fact that only 39 students tried to complete the quizzes. This could be due to the fact that students dropped the course, or failed to complete their quizzes. The data from the latter should not be used to determine the effectiveness of the course content as the lack of data is based on external factors.

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 are assessed based on data pulled from Blackboard using the grade center.

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

This class consists of three quizzes and one final exam. The questions consist of multiple choice, multiple answer, and true/false. The combined score of all three quizzes make up 1/5th of the student's overall grade. The final exam is worth 1/5th of the final grade as well. Failure to score at least 60% for all three quizzes or for the final exam constitutes a failure for the course.

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: No
Based on the data below, the standard of success was reached on three of the four written tests. However, the GMAW quiz had the lowest standard of success where 67% of the students scored 80% or higher. This means that only 67% of the students scored 80% or higher across all four of the tests. Therefore, the standard of success was not met. GMAW Quiz Vocabulary - 67% (26/39 students) FCAW Quiz Vocabulary - 97% (37/38 students) SMAW Quiz Vocabulary - 100% (39/39 students) Final Exam Vocabulary - 92% (36/39 students)

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

Based on the overall test results, the students demonstrated high performance in three out of the four areas. Notably, the final exam, administered at the end of the semester, displayed a success rate of 92% of the students achieving scores of 80% or higher. This statistic holds significance because the final exam encompasses vocabulary questions that are also present in the GMAW quiz, which had the lowest scores. Thus, it suggests that the students are making progress and acquiring knowledge as they advance throughout the semester. SMAW Vocabulary Questions - 100% FCAW Vocabulary Questions - 97%

Final Exam Vocabulary Questions - 92% GMAW Vocabulary Questions - 66%

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.

With a success rate of 66%, the GMAW quiz displayed the lowest level of achievement among the assessments. This outcome signals a need for additional attention to teaching GMAW vocabulary to the students. As a result, our plan is to dedicate more time to this specific area of instruction. We will implement a quiz that focuses on enhancing their understanding of the vocabulary associated with the GMAW welding process. By doing so, we aim to improve their comprehension and performance in this particular aspect.

Outcome 2: Recognize and interpret welding theory.

- Assessment Plan
    - Assessment Tool: Outcome-related questions on the written exam
    - Assessment Date: Fall 2024
    - 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 students will score 80% 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	

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

# of students enrolled	# of students assessed
47	39

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.

39 students were assessed based on the fact that only 39 students made an attempt to complete the quizzes. This could be due to the fact that students dropped the course or failed to complete their quizzes. The data from the latter should not be used to determine the effectiveness of the course content as the lack of data is based on external factors.

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 are assessed based on data pulled from Blackboard using the grade center.

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

This class consists of three quizzes and one final exam. The questions consist of multiple choice, multiple answer, and true/false. The combined score of all three quizzes make up 1/5th of the student's overall grade. The final exam is worth 1/5th of the final grade as well. Failure to score at least 60% for all three quizzes or for the final exam constitutes a failure for the course.

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: <u>No</u>
Based on the data below, the standard of success was reached on three of the four written tests. However, the SMAW quiz had the lowest standard of success where 56% of the students scored 80% or higher. This means that only 56% of the students scored 80% or higher across all four of the tests. Therefore, the standard of success was not met. GMAW Quiz Theory - 67% (26/39 students) FCAW Quiz Theory - 76% (29/38 students) SMAW Quiz Theory - 56% (22/39 students) Final Exam Theory - 64% (25/39 students)

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

According to the standard of success statistics below, students had the highest score in the FCAW theory questions. However, with the success rate at 74%, students were not able to achieve the desired success rate at 80%. FCAW Theory - 74% GMAW Theory - 67% Final Exam Theory - 64% SMAW Theory - 56%

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.

Considering the success standards of all four written tests, it is evident that there is a need to enhance the students' comprehension of welding theory. It is important to acknowledge that understanding the theory of the welding process is a skill that develops with experience. In the case of WAF126, an introductory course where students have limited prior welding experience, the overall average of 65% suggests that adjusting the success criteria for theory-related questions might be appropriate, considering the influence of their lack of experience. By acknowledging this factor, we can potentially set more attainable standards for theory-related assessments while still emphasizing the importance of practical experience. FCAW Theory - 74% GMAW Theory - 67% Final Exam Theory - 64% SMAW Theory - 56%

Outcome 3: Perform a groove, lap and tee weld in the flat or horizontal position on carbon steel with the SMAW process.

- Assessment Plan
    - Assessment Tool: SMAW welded samples

- Assessment Date: Fall 2024
- Course section(s)/other population: All
- Number students to be assessed: All
- How the assessment will be scored: The welds will be scored as pass or fail in meeting the D1.1 AWS welding code.
- Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.
- 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	

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

# of students enrolled	# of students assessed
47	35

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.

Out of the total 47 students enrolled in WAF126 for this semester, I was able to gather data on 35 students. Unfortunately, the information for the remaining 12 students was not obtained or available for the data collection process. Out of the 35 students from whom I collected data, four students received an audit for their final grade. Additionally, five out of the total 35 students failed the course. Consequently, the available data for analysis in this assessment pertains to only 26 students.

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.

For the assessment of this outcome, students were evaluated based on the availability of data for the sections offered during the respective semester. The necessary data was collected from the Final Grade Tabulation sheets, which are completed at the end of each semester. These sheets serve as the primary source of information for the assessment process, ensuring that data is accurately recorded and accounted for.

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

Students' assessments in the course involve the use of objective sheets included in their course packs, which are distributed at the start of each semester. These objective sheets outline the welding objectives for each specific welding process. The instructor evaluates and scores each welding objective as either a pass or fail. As students successfully complete each welding objective, the instructor initials the corresponding objective, documenting the students' progress throughout the course. This process enables clear tracking of the students' achievements and serves as a comprehensive record of their performance in meeting the course requirements.

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: No
Out of the 35 students from whom I collected data, only four students received an audit for their final grade. Additionally, five out of the total 35 students failed the course. Consequently, the available data for analysis in this assessment pertains to only 26 students. Out of the remaining 26 students, 73% successfully fulfilled all of their welding objectives. It can be safely assumed, based on the scoring criteria, that these students completed all the required SMAW objectives since attaining such a score would have been impossible otherwise. However, despite this achievement, the overall standard of success has not been met. It's important to note that the aforementioned percentage doesn't account for the students who requested an audit of their final grade. It is plausible that those students also completed all of their SMAW welds, potentially raising the standard of success to 88%. Unfortunately, I lack the necessary data to officially record this number and substantiate its accuracy. Explanation for the lack of distinction in the data between outcomes 3, 4, and 5: Our final grade tabulation sheets account for separate objectives. However, we only record the objectives that the students fail to complete. If a student receives 100 points on the practical objectives portion, it can be assumed that the student completed all of the SMAW, GMAW, and FCAW objectives. If a student fails to complete an SMAW objective for example, we would record that on the final grade tabulation sheet as a missing SMAW objective.

Later on, during the assessment, I was able to look at all of the available final grade tabulation sheets and tally the welds the welds missed by each student. I was able to do this with the data I had available, but it may come across as confusing unless you know how we did it. Since submitting this report, our department has revamped our data collection process so that data on all of these outcomes is easy to read, and well organized. The next series of assessment reports will show a more vivid picture.

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

Based on the available data, it can be observed that 73% of the students successfully accomplished all of their objectives, as per the standard of success for this outcome. However, it is worth mentioning that there was a possibility of the standard of success reaching 88%. Although the precise data to support this claim was not compiled, I have confidence that a significant majority of the students were able to complete their groove, lap, and tee welds in the SMAW process. Their performance in these specific welding techniques was likely commendable, highlighting their proficiency in this aspect.

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.

Based on the information I have compiled, I believe that the low standard of success for the outcome is not primarily due to individual student achievement but rather the lack of data. It is evident that completing the objectives related to this outcome is crucial for overall success.

In the action plans section, I will discuss how we can improve data compilation for the next assessment of this course. I am confident that my numbers are accurate based on the available data. However, there are clear changes we can make as a department to compile data that more accurately represents individual student success as it relates to practical welding objectives. By addressing these issues, we can ensure that future assessments provide a more comprehensive and precise evaluation of students' achievements.

Outcome 4: Perform a groove, lap and tee weld in the flat or horizontal position on carbon steel with the GMAW process.

- Assessment Plan
    - Assessment Tool: GMAW welded samples

- Assessment Date: Fall 2024
- Course section(s)/other population: All
- Number students to be assessed: All
- How the assessment will be scored: The welds will be scored as pass or fail in meeting the AWS D1.1 welding code.
- Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.
- 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	

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

# of students enrolled	# of students assessed
47	35

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.

Out of the total 47 students enrolled in WAF126 for this semester, I was able to gather data on only 35 students. Unfortunately, the information for the remaining 12 students was not obtained or available for the data collection process.

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.

For the assessment of this outcome, students were evaluated based on the availability of data for the sections offered during the respective semester. The necessary data was collected from the Final Grade Tabulation sheets, which are completed at the end of each semester. These sheets serve as the primary source of information for the assessment process, ensuring that data is accurately recorded and accounted for.

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

Students' assessments in the course involve the use of objective sheets included in their course packs, which are distributed at the start of each semester. These

objective sheets outline the welding objectives for each specific welding process. The instructor evaluates and scores each welding objective as either a pass or fail. As students successfully complete each welding objective, the instructor initials the corresponding objective, documenting the students' progress throughout the course. This process enables clear tracking of the students' achievements and serves as a comprehensive record of their performance in meeting the course requirements.

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: No

Out of the 35 students from whom I collected data, only four students received an audit for their final grade. Additionally, five out of the total 35 students failed the course. Consequently, the available data for analysis in this assessment pertains to only 26 students.

Out of the remaining 26 students, 73% successfully fulfilled all of their welding objectives. It can be safely assumed, based on the scoring criteria, that these students completed all the required SMAW objectives since attaining such a score would have been impossible otherwise. However, despite this achievement, the overall standard of success has not been met.

It's important to note that the aforementioned percentage doesn't account for the students who requested an audit of their final grade. It is plausible that those students also completed all of their SMAW welds, potentially raising the standard of success to 88%. Unfortunately, I lack the necessary data to officially record this number and substantiate its accuracy.

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

Based on the available data, it can be observed that 73% of the students successfully accomplished all of their objectives, as per the standard of success for this outcome. However, it is worth mentioning that there was a possibility of the standard of success reaching 88%. Although the precise data to support this claim was not compiled, I have confidence that a significant majority of the students were able to complete their groove, lap, and tee welds in the GMAW process. Their performance in these specific welding techniques was likely commendable, highlighting their proficiency in this aspect.

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.

Based on the information I have compiled, I believe that the low standard of success for the outcome is not primarily due to individual student achievement but rather the lack of data. It is evident that completing the objectives related to this outcome is crucial for overall success. In the action plans section, I will discuss how we can improve data compilation for the next assessment of this course. I am confident that my numbers are accurate based on the available data. However, there are clear changes we can make as a department to compile data that more accurately represents individual student success as it relates to practical welding objectives. By addressing these issues, we can ensure that future assessments provide a more comprehensive and precise evaluation of students' achievements.

Outcome 5: Perform a groove, lap and tee weld in the flat or horizontal position on carbon steel with the FCAW process.

- Assessment Plan
    - Assessment Tool: FCAW welded samples
    - Assessment Date: Fall 2024
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: The welds will be scored as pass or fail in meeting the D1.1 AWs welding code.
    - Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.
    - 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	

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

# of students enrolled	# of students assessed

47	35

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.

Out of the total 47 students enrolled in WAF126 for this semester, I was able to gather data on only 35 students. Unfortunately, the information for the remaining 12 students was not obtained or available for the data collection process.

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.

For the assessment of this outcome, students were evaluated based on the availability of data for the sections offered during the respective semester. The necessary data was collected from the Final Grade Tabulation sheets, which are completed at the end of each semester. These sheets serve as the primary source of information for the assessment process, ensuring that data is accurately recorded and accounted for.

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

Students' assessments in the course involve the use of objective sheets included in their course packs, which are distributed at the start of each semester. These objective sheets outline the welding objectives for each specific welding process. The instructor evaluates and scores each welding objective as either a pass or fail. As students successfully complete each welding objective, the instructor initials the corresponding objective, documenting the students' progress throughout the course. This process enables clear tracking of the students' achievements and serves as a comprehensive record of their performance in meeting the course requirements.

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: No

Out of the 35 students from whom I collected data, only four students received an audit for their final grade. Additionally, five out of the total 35 students failed the course. Consequently, the available data for analysis in this assessment pertains to only 26 students.

Out of the remaining 26 students, 73% successfully fulfilled all of their welding objectives. It can be safely assumed, based on the scoring criteria, that these students completed all the required SMAW objectives since attaining such a score would have been impossible otherwise. However, despite this achievement, the overall standard of success has not been met.

It's important to note that the aforementioned percentage doesn't account for the students who requested an audit of their final grade. It is plausible that those students also completed all of their SMAW welds, potentially raising the standard of success to 88%. Unfortunately, I lack the necessary data to officially record this number and substantiate its accuracy.

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

Based on the available data, it can be observed that 73% of the students successfully accomplished all of their objectives, as per the standard of success for this outcome. However, it is worth mentioning that there was a possibility of the standard of success reaching 88%. Although the precise data to support this claim was not compiled, I have confidence that a significant majority of the students were able to complete their groove, lap, and tee welds in the FCAW process. Their performance in these specific welding techniques was likely commendable, highlighting their proficiency in this aspect.

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.

Based on the information I have compiled, I believe that the low standard of success for the outcome is not primarily due to individual student achievement but rather the lack of data. It is evident that completing the objectives related to this outcome is crucial for overall success.

In the action plans section, I will discuss how we can improve data compilation for the next assessment of this course. I am confident that my numbers are accurate based on the available data. However, there are clear changes we can make as a department to compile data that more accurately represents individual student success as it relates to practical welding objectives. By addressing these issues, we can ensure that future assessments provide a more comprehensive and precise evaluation of students' achievements.

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.

We have now updated data collection methods and will implement for the next assessment.

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 assessment process has revealed several key strategies that faculty can implement to enhance student achievement and streamline future data collection for assessing this course. These strategies, which will be detailed in the Action Plan, aim to provide students with a clearer understanding of the course objectives, thereby facilitating their performance in class. Simultaneously, these improvements will greatly benefit faculty in our department, as data collection will be significantly more efficient compared to the challenges encountered during this assessment. One notable observation during the data analysis of this assessment was the unexpected difficulty in organizing the data in a manner that could be accurately interpreted. Nevertheless, I firmly believe that this class effectively meets the needs of our students. In practice, it's easy to see the students' progress through the course material. However, it is imperative that we work to simplify the assessment process for this course.

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

Departmental meetings and email.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Assessment Tool	Outcome 1 tool updated to specify that both quizzes and exam questions will be used. We are in the process of improving our data collection tools in order to make this feasible.	This more granular data is better reflective of student learning.	2023

Course Assignments	The WAF126 class currently consists of four written assessments and one final exam. To enhance the clarity and focus of the quiz questions, I propose a modification where each quiz is divided into two sub-quizzes. Specifically, students would take a GMAW theory quiz and a separate GMAW vocabulary quiz. By doing so, we can more precisely assess their comprehension of both the theoretical concepts and the specific vocabulary related to GMAW. For the final exam, we would incorporate questions that overlap from the quizzes, enabling us to compile data that tracks the students' progression in understanding vocabulary and theory across all welding processes covered in the course. Additionally, we should establish a database containing records of students'	Data for the assessment of the outcomes related to theory and vocab were pulled from blackboard and organized manually. Although the data gathered was adequate to answer the questions necessary to complete this assessment. It is clear that a change in the process would benefit both students and faculty alike. The data gathered for the practical welding objectives was pulled from the instructors who taught sections of WAF126 during the Winter 2022 semester. By organizing the data from each section immediateley following the end of each semester we'll be able to easily access the data necessary to assess the course and make changes that will positively impact the students.	2024

	practical welding objectives. This will provide us with more accurate data as we progress into the next assessment cycle.		
Other: Data	The department has updated the data collection process.	Data for future assessment reports will be cleaner and much easier to understand, especially when it comes to distinction between outcomes.	2023

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

6.

III. Attached Files

Final Grade Tabulation Data for Welding Objectives
SMAW Quiz Standard of Success Data
Final Exam Standard of Success Data
GMAW Quiz Standard of Success Data
FCAW Quiz Standard of Success Data

Faculty/Preparer:	Alexander Pazkowski	**Date:** 08/14/2023
Department Chair:	Glenn Kay II	**Date:** 08/16/2023
Dean:	Jimmie Baber	**Date:** 08/28/2023
Assessment Committee Chair:	Jessica Hale	**Date:** 01/13/2025

Course Assessment Report
Washtenaw Community College

Discipline	Course Number	Title
Welding and Fabrication	126	WAF 126 08/17/2021-Introduction to Welding Processes II
College	Division	Department
Advanced Technologies and Public Service Careers	Advanced Technologies and Public Service Careers	Welding and Fabrication
Faculty Preparer		Amanda Scheffler
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?

   No

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

   3.

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

   5.

II. Assessment Results per Student Learning Outcome

Outcome 1: Recognize and apply welding vocabulary.

- Assessment Plan
  - Assessment Tool: Written exam
  - Assessment Date: Fall 2019
  - 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 students will score 80% 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)
		2021

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

# of students enrolled	# of students assessed
14	11

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.

Three students who were enrolled did not participate in Blackboard activities and were not included in the assessment.

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 in the semester were included in the assessment.

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

The tool used was a multiple-choice exam administered in Blackboard 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: No
The results are based on the Blackboard exam submissions and show 64% of students scored 80% or higher. -27.3% (3) scored 90-100%.

-36.4% (4) scored 80-89%. -36.4% (4) scored 70-79%.

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

Areas of strength appear to be in welding equipment vocabulary, understanding industry acronyms, definitions of discontinuities, and weld applications.

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.

Areas of improvement seem to be with recognizing American Welding Society (AWS) electrode designations, weldment numerical positions, and safety gear.

Outcome 2: Recognize and interpret welding theory.

- Assessment Plan
    - Assessment Tool: Written exam
    - Assessment Date: Fall 2019
    - 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 students will score 80% 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)
		2021

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

# of students enrolled	# of students assessed
14	11

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.

Three students who were enrolled did not participate in Blackboard activities and were not included in the assessment.

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 in the semester were included in the assessment.

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

The tool used was a multiple-choice exam administered in Blackboard 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: No
The results are based on the Blackboard exam submissions and show 73% of students (8 of 11) scored 80% or higher. -36.4% (4) scored 90-100%. -36.4% (4) scored 80-89%. -27.3% (3) scored 70-79%.

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

Areas of strength appear to be in the information that can be referenced from the text book used for the class: electrode specifications, proper technique applications for electrodes, and shade selections.

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.

Areas of improvement seem to be with information that can referenced from the lecture and PowerPoint: selecting techniques and positions for specific electrode classifications, proper polarities per electrode, and usable amperage ranges per electrode.

Outcome 3: Perform a groove, lap and tee weld in the flat and horizontal positions on carbon steel with the GMAW process.

- Assessment Plan
    - Assessment Tool: Welded samples
    - Assessment Date: Fall 2019
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: The welds will be scored as pass or fail in meeting the AWS D1.1 welding code.
    - Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.
    - 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)
		2021

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

# of students enrolled	# of students assessed
14	14

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 who participated in welding lab activities were included in this assessment.

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 in the semester were included in the assessment.

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

Students were given a list of weldments. The list has an area beside each weld for the instructor to sign once a student completed a weld meeting the visual acceptance criteria in AWS D1.1 code.

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: No
79% (11 of 14) of students scored 80% or higher.

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

GMAW is the second weld process for the students in this course. There is a little less time allocated to this process than SMAW. Areas of strength seem to be that if a student continues to attend class and lab sessions, they continue improving their rate of attaining successful weld signoffs.

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.

Student weld performance could be better analyzed if there was a more detailed breakdown of scores for welds that met the acceptance criteria. Right now, weld quality is measureable but is documented as pass/fail of meeting AWS D1.1 code acceptance criteria. The individual weld discontinuities are not documented. If there was documentation of the individual discontinuities for these welds then a more in-depth analysis could be done to identify what areas of improvement could use attention in weld applications.

Outcome 4: Perform a groove, lap and tee weld in the flat and horizontal positions on carbon steel with the FCAW process.

- Assessment Plan
    - Assessment Tool: Welded samples
    - Assessment Date: Fall 2019

- Course section(s)/other population: All
- Number students to be assessed: All
- How the assessment will be scored: The welds will be scored as pass or fail in meeting the D1.1 AWs welding code.
- Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.
- 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)
		2021

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

# of students enrolled	# of students assessed
14	14

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 who participated in welding lab activities were included in this assessment.

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 in the semester were included in the assessment.

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

Students were given a list of weldments. The list has an area beside each weld for the instructor to sign once a student completed a weld meeting the visual acceptance criteria in AWS D1.1 code.

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: No

79% (11 of 14) of students scored 80% or higher.

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

FCAW is the last weld process for the students in this course. The least amount of class time is allocated to this process compared to the others. Areas of strength seem to be that if a student continues to attend class and lab sessions, they increase their rate of attaining successful weld signoffs.

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.

Student weld performance could be better analyzed if there was a more detailed breakdown of scores for welds that met the acceptance criteria. Right now, weld quality is measureable but is documented as pass/fail of meeting AWS D1.1 code acceptance criteria. The individual weld discontinuities are not documented. If there was documentation of the individual discontinuities for these welds, a more in-depth analysis could be done to identify what areas could use attention in weld applications.

Outcome 5: Perform a groove, lap and tee weld in the flat and horizontal positions on carbon steel with the SMAW process.

- Assessment Plan
    - Assessment Tool: Welded samples
    - Assessment Date: Fall 2019
    - Course section(s)/other population: All
    - Number students to be assessed: All
    - How the assessment will be scored: The welds will be scored as pass or fail in meeting the D1.1 AWS welding code.
    - Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.
    - 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)

		2021

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

# of students enrolled	# of students assessed
14	14

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 who participated in welding lab activities were included in this assessment.

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 in the semester were included in the assessment.

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

Students were given a list of weldments. The list has an area beside each weld for the instructor to sign once a student completed a weld meeting the visual acceptance criteria in AWS D1.1 code.

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: No
79% (11 of 14) of students scored 80% or higher.

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

SMAW is the first weld process for the students in this course.

Areas of strength appear to be that all the students who successfully completed these SMAW welds were able to be successful in the other welding processes too.

Having weld demonstrations for each weld objective seemed to be helpful for students to understand how to execute a weld.

Since SMAW is the first weld process, students spend more time practicing this process in the shop, which could lead to their success with this welding process.

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.

Areas of improvement could be used in analyzing why students who were not successful in the first welding process were not successful in the class.

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.

No previous assessment has been done.

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?

My overall impression is that this course meets the needs of students who can allocate the required time to the class. If a student has a life event that gets them behind in the class, then it becomes more difficult to catch up and be successful.

There were three students who failed the three lab outcomes even though they attended at least one welding lab session.

The same three students never attempted any Blackboard course work. It appears students show up to and focus on the lab work first, while their online course work takes a back seat until the end.

Looking at the Blackboard submissions, most students wait until the last weeks of the semester to do their online course work. No conclusion has been identified as to why there is chronic procrastination.

My overall impression is that the students who show up and work in the welding lab sessions are the ones who are more successful. It appears that once a student misses a lab session, they are likely to miss more. This puts them behind in lab work and could be a possible cause of them not showing up anymore.

Another possible cause for students to stop attending lab sessions could be the temperature in the lab during the spring/summer semester. In May, the temperature is fine but it's often over 100F in June/July. The lab seems to top out at 107F though. There have been times where the temperature in the lab was at

107F every day for several continuous weeks during lab sessions. Documentation and comparisons between semesters is needed to identify if this has an impact on student attendance and success during spring/summer semesters.

I noticed in my class, it took about a month before students could figure out if they liked welding **and** how they could be comfortable enough with donning the PPE to weld successfully. The semester assessed is in the summer. SMAW is already hot and it occasionally requires the welder to wear leather for increased protection. This increase in physical temperature and wearing thick clothing causes students to take more breaks from welding to cool down, as they should, but it reduces their working time.

Specific to post-pandemic life, I had several students in my class tell me they liked the virtual lectures. It allowed them flexibility to log in and listen to the lecture if they were running late because they were stuck in traffic or their baby sitter was late, etc. Documentation and comparisons are needed to determine if virtual lectures increased attendance rates.

With the three students who were included in the data for the last three outcomes, I included them because they were participating in lab sessions but stopped attending at different times in the semester. How far they made it on their signoff list was undocumented before they stopped attending. There is no departmental documentation of what students have accomplished after every lab session. This could be helpful in future assessments.

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

This information will be shared with faculty during our regularly scheduled Department meeting.

4. Intended Change(s)

Intended Change	Description of the change	Rationale	Implementation Date
Other: Earlier Data Retention/Intervals	This change is not set in stone; discussions and collaboration within the department on how to implement this idea is needed before it can be implemented.	I think keeping track of student completions at the end of lab sessions could help identify things such as common hold up points in the class, or if there's consistency in the	2022

	I think WAF course assessments could benefit from intermittently collecting information on the signoffs students have completed at the end of each lab session, or every two weeks, or whatever interval would seem best for the department.	lab work when students drop or stop attending.	

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

6.

III. Attached Files

126 Assess Data

Faculty/Preparer:	Amanda Scheffler	**Date:**	08/17/2021
Department Chair:	Bradley Clink	**Date:**	08/18/2021
Dean:	Jimmie Baber	**Date:**	08/19/2021
Assessment Committee Chair:	Jessica Hale	**Date:**	01/08/2024