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

    o Assessment Tool: Written exam

    o Assessment Date: Fall 2019

    o Course section(s)/other population: All

    o Number students to be assessed: All

    o How the assessment will be scored: Answer key

- o Standard of success to be used for this assessment: 80% of students will score 80% or higher.

- o 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: <u>No</u>
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

    o Assessment Tool: Written exam

    o Assessment Date: Fall 2019

    o Course section(s)/other population: All

    o Number students to be assessed: All

    o How the assessment will be scored: Answer key

    o Standard of success to be used for this assessment: 80% of students will score 80% or higher.

    o 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: <u>No</u>
>
> 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

    o Assessment Tool: Welded samples

    o Assessment Date: Fall 2019

    o Course section(s)/other population: All

    o Number students to be assessed: All

    o How the assessment will be scored: The welds will be scored as pass or fail in meeting the AWS D1.1 welding code.

    o Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.

    o 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
    o Assessment Tool: Welded samples
    o Assessment Date: Fall 2019

- o Course section(s)/other population: All

- o Number students to be assessed: All

- o How the assessment will be scored: The welds will be scored as pass or fail in meeting the D1.1 AWs welding code.

- o Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.

- o 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

    o Assessment Tool: Welded samples

    o Assessment Date: Fall 2019

    o Course section(s)/other population: All

    o Number students to be assessed: All

    o How the assessment will be scored: The welds will be scored as pass or fail in meeting the D1.1 AWS welding code.

    o Standard of success to be used for this assessment: 80% of students will create passing welds in accordance with AWS D1.1 code.

    o 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: <u>No</u>
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