

Welding Science and Technology
Utah State University – Eastern (Price Campus)

Program Assessment

Welding Technology

Updated: 10 October, 2016

Mission: USU-Eastern Utah Welding Department is committed to providing an excellent technical program that supports three learning pathways: (1) a one-year certificate of completion for those students who want to develop sufficient skills and enter the workforce quickly, (2) a two-year Associate of Applied Science degree for students desiring a broader background and higher level skills, and (3) an Associate of Science degree for those students planning to transfer to a four-year institution and graduate from a welding related program. We encourage the development of citizenship and professionalism in our students and we serve as a technical resource for our community.

Outcome 1: Implicit to the “excellent technical program” statement is the expectation that students completing the program will demonstrate technical competence.

Outcome 2: Students will demonstrate technical excellence, professionalism, and citizenship.

Outcome 3: Students will possess technical welding knowledge.

Assessment 1: Industry Testing

Mission Excerpt: USU-Eastern Welding Department is committed to providing an excellent technical program... (Also highlights our commitment to both 1 yr and 2 yr program pathways.)

Outcome 1: Implicit to the “excellent technical program” statement is the expectation that students completing the program will demonstrate technical competence. Our welding students will perform well when tested by an independent industry organization and compared to the national pool.

Industry Testing Assessment

Method & Standard	Data	Action
<p>Every three years, we ask our one-year and two-year students (that appear to be eligible for a 1-yr certificate or a AAS degree) to take the National Occupational Competency Testing Institute (NOCTI) welding test. We expect our students to score above the national average in 80% or more of the test areas (14 technical areas), and we expect 80% or more of our students' composite scores to exceed the national average.</p>	<p>In 2002 CEU welding students exceeded the national average in 14 of 14 technical areas, and, 90% of the students exceeded the composite national average.</p> <p>In 2005, CEU welding students again exceeded the national average in 14 of 14 technical areas, and, 89% of the students exceeded the national composite average. First year students averaged 69.6% and second year students averaged 79% compared to the national average of 60.3%.</p> <p>By 2008, NOCTI had modified the test by reducing the 14 technical areas to 9. In 2008, CEU welding students exceeded the national average in 9 of 9 technical areas. 81% of the students exceeded the national composite average. However, two of the three students that did not exceed the national average had documented learning disabilities that required extended testing time and distraction-free testing --- which could not be accommodated with the NOCTI test format. If those two cases were removed from the data, then 93% of the students exceeded the national average. For full data see file: NOCTI Results 2008.xlsx</p> <p>Fall 2012 Update: We fell behind on this assessment and it is scheduled for late Spring 2013.</p> <p>Fall 2013 Update: The NOCTI test was completed April 2013 and USU-Eastern students exceeded the national average in 9 of 9 technical areas (80% goal, 100% achieved). Also, all students exceeded the national composite average (80% goal, 100% achieved). For the full report see file: NOCTI Results 2013.xlsx</p>	<p>None is necessary. However, we are aware that Safety, Oxy-Fuel Welding & Brazing, and Power Source Principles were our weakest areas (where our students exceeded the national average by only 2.6, 4.9 and 6.1 points respectively). The power source curriculum was overhauled Fall 2005. Although our safety lecture is routinely revised, we are considering more comprehensive changes. Oxy-fuel welding is becoming obsolete and we do not intend to emphasize.</p> <p>2008 Action Analysis: Our worst performing area, exceeding the national average by only 1.6%, was Welding Symbols and Print reading. This appears to be a simple matter of timing because this class is only taught every other year and first year students had not taken the course. Second year students (who had taken the course) averaged 97.6%, excluding the discrepant case. No specific action is warranted --- we will continue to make incremental improvements.</p> <p>2013 Action: This iteration of the NOCTI assessment was a home run. All national averages were readily exceeded. Nonetheless, safety was our lowest score and technical area we should focus on.</p>

Assessment 2: SkillsUSA Competition

Mission Excerpt: USU-Eastern Welding Department is committed to providing an excellent technical program... & ... We encourage the development of citizenship and professionalism in our students

Outcome 2: SkillsUSA is a fine national organization that promotes technical excellence, professionalism, and citizenship. In addition, the SkillsUSA contests allow us to gauge our program against the best in the state and in the nation. We will encourage student participation and compete at the state contest yearly.

SkillsUSA Competition Assessment		
Method & Standard	Data	Action
We expect to place 1st or 2nd in the Utah welding competition each year and in the top 10 in the nation whenever we compete at the national level.	<p>CEU welding has placed 1st in the Utah competition 7 of the last 8 years and placed in the top 7 at the national competition in each of the 7 years we competed.</p> <p>Fall 2006 update: Our 2006 competitor placed first in the State of Utah and finished 2nd in the nation.</p> <p>Fall 2007 Update: Our 2007 competitor placed first in the state of Utah and finished 2nd in the nation.</p> <p>Fall 2008 Update: Our 2008 competitor placed first in the state of Utah and finished 1st in the nation. He also won the U.S. Open Welding Trials. In addition, a new Team Welding Fabrication contest was added in 2008 and CEU represented Utah at the national contest where we took 1st place.</p> <p>Fall 2009 Update: We won the state competition (at the college level) in both welding and welding fabrication (exceeds goal). We placed 3rd in the nation in welding fabrication (exceeds goal); however, we placed 13th in the nation in welding (does not satisfy goal).</p> <p>Fall 2010 Update: We won the Utah welding and team welding fabrication at both the high school and college levels. Subsequently, we earned national silver in both contests at the college level; gold in high school team welding fabrication; and fourth place in high school welding.</p> <p>Fall 2011 Update: We won the state</p>	<p>Currently none necessary. However, a fuller participation in the ideals of SkillsUSA (rather than just the competitions) should be encouraged.</p> <p>Fall 2006: We are extremely pleased with the 2006 results and can only repeat the above comments.</p> <p>Fall 2007: Same as above</p> <p>Fall 2008: We are the national champions in both welding and team welding fabrication. Plus winner of the USA Welding Trials. This feat has never been accomplished before by any single school and likely never will again. The addition of the team contest helps encourage broader participation mentioned at the top of this column.</p> <p>Fall 2009: The 13th place finish was disappointing. After considering the results it just appears to be a case where the contestant did not perform to his ability. We are pleased with the bronze medal in team welding fabrication.</p> <p>Fall 2010: Another fabulous year for SkillsUSA welding contests. The results support the above analysis that the 2009 individual welder finish was a fluke rather than a trend. We are questioning continued participation in this activity due to strained resources.</p> <p>Fall 2011: Keep it up. Welding</p>

	<p>competition at the college level in both welding and welding fabrication (exceeds goal). We won the national championship (Gold medal) in welding fabrication and placed 5th in the nation in welding (exceeds goal).</p> <p>Fall 2012 Update: We won the Utah welding and team welding fabrication contests at the college level (exceeds goal). We (again) won the national championship in welding fabrication and (again) placed 5th in the nation in welding (exceeds goal).</p> <p>Fall 2013 Update: We won the Utah welding contest and placed 2nd in team welding fabrication. We placed 5th at the national welding competition. All results satisfy the stated goal.</p> <p>Fall 2014 Update: We won the Utah welding contest and placed 2nd in team welding fabrication. Our national contestant was subsequently injured in a bike accident and it was decided to step aside and let the 2nd place finisher compete at the national welding contest.</p> <p>Fall 2015 Update: Both the individual and fabrication team placed first in the Utah Contest. Both competed at the national competition where the fabrication team placed 2nd (silver medal) and the individual placed 23rd.</p> <p>Fall 2016 Update: Both the individual and fabrication team placed second in the Utah contest. This was the first time we did not win the Utah individual contest since 2002. Neither 2nd place result was eligible for the national contest. This was the first time we have not attended the national contest in many years.</p>	<p>competitor qualified for the USA welding trials.</p> <p>Fall 2012: Another successful year and another student qualified to compete in the USA Welding Trials (he declined). We are again debating the continuance of this goal and participation in SkillsUSA competitions due to time and expenses involved.</p> <p>Fall 2013: Our fabrication team did not prepare to the normal extent and struggled with the new competition format. We will be working on team formulation and motivation if this activity continues.</p> <p>Fall 2014: The fabrication team performed well but only earned 2nd place. The individual won and expected to compete at nationals even with the injury, but, it is expensive to compete at nationals and it was obvious his preparation and training would be impaired. It was the right decision to step aside.</p> <p>Fall 2015: Pleased with fab team result, but, missed our goal (top 10 in the nation) with our individual. This is only the second time we have missed this goal. It appears this result is from a combination of factors (wedding, working full time, shop access for practice, etc.). Must discuss instructor support and shop access guidelines with new admin..</p> <p>Fall 2016: One instructor left, a new instructor was hired. We were short one instructor and overloaded Spring 2016. Fall 2016 semester started with a strong SkillsUSA effort that is expected to result with improved 2017 performance.</p>
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Assessment 3: Pretest/Posttest

Mission Excerpt: ... providing an excellent technical program that supports three learning pathways

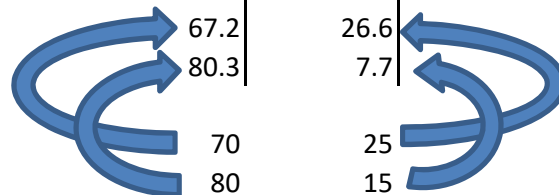
Outcome 3: We expect the students to learn what we are trying to teach. Conversely: we expect to be effective teachers. Although the previous assessments demonstrate that our students are leaning/performing based on external criteria, we want to know that they are learning (and we are conveying) elements that we feel are important. **Every three years** we require our students to complete a pretest at the beginning of the Fall Semester and a posttest towards the end of the following spring semester.

Pretest / Posttest Assessment		
Method & Standard	Data	Action
<p>We have developed a test that represents the body of knowledge that we are trying to convey. We expect the group of students that appear eligible for a 1-year certificate to complete the posttest with a 70% or higher average and we expect the 2-year student group to complete the posttest with an 80% or higher average. We also expect the 1st year student average to increase by 25 percentage points or more (over that group's pretest score) and the 2nd year students to improve by 15 percentage points or more.</p>	<p>The Fall 2002/Spring 2003 cycle was completed with an average pretest score of 54 percent. The 1st year student posttest average was 71.6 and the 2nd year student average was 83.9. First year students improved by 32.9 percentage points and 2nd year students improved by 17.2 percentage points.</p> <p>Fall 2006 update: For the Fall 2005/Spring 2006 pretest/posttest, the average pretest score (including all students ... even those that dropped) was 45 percent. The first year student posttest average was 66% and the 2nd year student average was 81%. First year students improved by 23.7% and second year students improved by 13 percent. Our gains were more modest than the prior period, but the data was more closely controlled.</p> <p>Summer 2009 update: For the fall 2008/Spring 2009 pretest/posttest, the 1 year certificate eligible students averaged 71.9 percent on the post-test and the 2 year AAS degree students averaged 83.9 percent. 1-year students improved by 21.9 percent and 2-year students improved by 25.2 percent. We exceeded the stated assessment goals. For the 2008/2009 data, see file: Pre Post Test Assess 2009.xlsx</p> <p>Fall 2012 Update: The pretest was given this fall and the posttest is scheduled for spring.</p> <p>Fall 2013 Update: The 1-year certificate eligible students averaged 67.9 (2.1% below goal); however, their</p>	<p>The criteria were satisfied. However, we need to do a better job of compiling the data on this round of testing. Specifically pre-identifying 1st and 2nd year students and also eligibility. This assessment uses data from students that completed both the pretest and the posttest (students completing only one portion were excluded from the assessment). It is not our intent to include students that are not satisfactorily progressing (likely dropouts and non-completers).</p> <p>Fall 2006 Update: The data was compiled with fewer discrepancies and the evaluation was conducted in a conservative manner. We missed our 70% goal for first year completers by 4% and satisfied the 2nd year 80% goal by just 1 percent. We missed our improvement goal for both groups by about 1 and 2% respectively. We believe these are difficult goals to achieve and will continue our efforts.</p> <p>Summer 2009 Update: This cycle we exceeded our assessment goals. There were no serious concerns with the data. The 2008/2009 assessment cycle (all welding assessments) returned truly outstanding results that can probably never be repeated.</p> <p>Fall 2012 Update: Waiting to give the posttest next spring.</p> <p>Fall 2013 Update: The 2.1% below goal average for the 1st year students was somewhat overshadowed by the 4.2% above goal knowledge increase.</p>

	<p>pretest/posttest improvement was 29.2% (4.2% above goal). This would indicate a less knowledgeable group at the beginning of the year that excelled during the year but did not quite erase the deficit. The second year students exceeded both goals with 84.3% overall average and 15.2% year-over-year improvement.</p> <p>Fall 2016 Update: The 1 year certificate eligible students averaged 67.2 (2.8% below goal); however, their pretest/posttest improvement was 26.6% (1.6% above goal). The second year students barely exceeded the 80% goal with 80.3% and improved only 7.7%; well under the 15% improvement goal.</p>	<p>These students showed good but not unprecedented improvement. Our instrument (test) is the same as we used in 2002 and it is possible that the test is becoming dated. In other words, perhaps our teaching has kept up but the test has not. This will be a consideration for the next assessment.</p> <p>Fall 2016 Update: Each group exceeded one of two goals. The weak 7.7 percent improvement for 2nd year students is a concern. Part of it can be explained by high pretest scores (at 72.6% , they already knew a lot) and I suspect part of the disappointing result was likely due to an instructor (no longer with us) that was not focused on the stated curriculum. A new instructor is in place and focused on the appropriate curriculum. The instrument (pre/post test) could still be outdated and may be updated before the next assessment.</p>
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USU Eastern Welding Program 2015/2016 Pretest/Posttest Assessment

		Pre-Test		Post-Test		Difference	Year	Eligible
		Score	Percent	Score	Percent			
Allred	Cameron		74.2	81		6.8	2	yes
Barney	Ryland		74.2	84.0		9.8	2	yes
Conover	Brandon		48.4	77.0		28.6	1	yes
Dalpiaz	Thomas		58.1	81.0		22.9	1	yes
Davis	Cody		74.2	74.2		0.0	2	yes
Dull	Kevin		16.1	61.0		44.9	1	yes
Finkbiner	Clayton		61.3	68.0		6.7	1	yes
Howerton	James		35.5	65.0		29.5	1	yes
Lantz	Dakokta		41.9	77.0		35.1	1	yes
McManus	Kanyen		80.6	87.0		6.4	2	yes
Oman	Brent		54.8	58.0		3.2	1	yes
Schiess	Dagen		48.4	81.0		32.6	2	yes
Shoemaker	Josh		67.7	87.0		19.3	2	yes
Skaggs	Alex		80.6	77.0		-3.6	2	yes
Sorenson	Wacey		38.7	68.0		29.3	1	yes
Taylor	Buck		35.5	52.0		16.5	1	yes
Valenzuela	Raul		16.1	65.0		48.9	1	yes
Zamantakis	Steven		80.6	71		-9.6	2	yes
1st Year Student Average:			40.6	67.2		26.6		
2nd Year Student Average:			72.6	80.3		7.7		
Assessment Goals:				70		25		
				80		15		



Date of Post Test and Assessment analysis: 10/10/2016, Lon Youngberg