



Southwestern Academic Program Review Welding and Fabrication Program

Process

Program Review is a continuous process of collecting, evaluating, and using information to determine if and how well performance matches learning or service outcomes which occurs on at least a triennial basis. We gather evidence of student learning; discover the degree to which courses, programs, and administrative and educational support services accomplish intended outcomes; and probe the achievement of institutional projects, core themes, and mission. Southwestern conducts program reviews of all programs and services on a quadrennial basis (every 4 years) and uses the results of the assessments to enhance and improve current programs and services.

Resources

Program Review detailed instructions
[Report Documentation](#) – myLakerLink on the Resource Center tab
Reports – must be on campus or access network to process reports
[Course Completion Report](#)
[Course Completion by Course Report](#)
[Course Completion by Degree Report](#)
[Course Enrollments Report](#)
[GL Unit Costs by Fund by Unit Report](#)
[Graduates by Major Report](#)
[OLMIS](#) – Employment Opportunities
Persistence Report – being developed
[Student Enrollment Report – Enrollments, FTE, Billing Credits](#)
Transfer Reports – being developed

Program review consists of the following elements

- ✓ [Program Description and Goals / Philosophy](#)
- ✓ [Program Narratives](#)
- ✓ [Student Learning Outcomes](#) including measures and criterion for achievement
- ✓ [Operational Data](#) analysis
 - I. [Enrollments](#)
 - II. [Financial Viability](#)
 - III. [Efficiency of Delivery](#)
 - IV. [Instructional Effectiveness](#)
 - V. [Program Student Success](#)
 - VI. [Program Relevance](#)
 - VII. [Graduate Student Success](#)
- ✓ Reflection of the data
- ✓ [Projects](#) planned based on evidence
- ✓ Association with core themes and other planning, processes/projects
- ✓ Activity [Timeline](#)

All reports are available within myLakerLink and are located on the Resource Center tab. Links to all reports are located within each section title of this document. Program Review requirements for certain sections include multiple reports with additional links to the reports located within the specific section of the report.

PART A: Program Review Narratives

Program Description and Goals / Philosophy

The Welding and fabrication Program provides students with the technical knowledge, and hands on training to achieve skills to the industry's standards. The program offers four career pathway certificates, and an AAS degree in welding and fabrication that is in alignment with the American Welding Society and American petroleum Institute. Through these options, students can obtain entry-level employment with the technical knowledge for career advancement. Our goal is to teach students the experience and knowledge that is necessary to be successful in the welding industry.

Administration

- **Faculty /Staffing:** In the spring of 2015, the Southwestern welding programs department head retired, leaving one instructor. In the summer of 2015 another welding instructor was hired. Through a Perkins grant the Program also hired a second year student as a temporary teaching assistant.
- **Professional Development:** American welding society memberships, advanced educators workshops and various welding conferences
- **Support Services used: N/A**
- **Advisory Committee:** We utilize many diverse industrial avenues to form our advisory committee, this includes local industries and supplier throughout the community. Our goal is to stretch beyond our community to obtain better understanding of what industries are regarding as necessary.
- **Community Relationships/Partnerships:** At this time we do not currently have any internships available to our student. It is our goal to work with local industries to obtain an internship for students to acquire on-the-job experience. Instructors participate in community job fairs for local high school student.
- **Program Accreditation (if applicable): N/A**

Curriculum

- **Degrees/Certificates offered and changed since last review:** Southwestern offers an AAS in welding and fabrication and a one year certificate of completion.
- **Course list and Changes since last review, including new and revised courses:** Starting in the winter of 2013, the program started the process to create three new pipe classes in the program. Also in the winter of 2013, current courses in the program went through revisions to maintain alignment with advancements and changes in the welding industry.
- **Career pathway/Program of study Efforts:** At the present, we offer three Career Pathway certificates: a welding technician, welding assistant, and pipe fitting.
- **Delivery Methods /Instructional Methodology:** The welding classes are offered during the day, with the exception of a few night classes for the AAS degree. The general studies classes are made to fit around the welding labs.
- **Articulation /Transferability:**
- **Dual Credit Offerings:** Currently working with local high school to develop and recognize a partial credit offering in two of our introductory classes.
- **Course Scheduling Issues:** A major challenge is to maintain instructor-student ratio during the lab classes to improve student advancement. We have some curriculum classes that are taught by part time faculty and are only offered one term, so it is imperative that we keep the student on track with the program schedule.
- **Instructional Materials (textbooks, software issues):** Faculty use textbook and software that is in alignment with the industry standards.

Students

- **Special Populations:** The majority of our Welding students are in-district students and are in the 18-24 age bracket.
- **Recruitment:** The recruitment is based on the mobile training center that we take to local high schools and different community functions throughout the year.
- **Advising:** The current full time faculty members are advisors for all welding students in the program.
- **Student Satisfaction:** Students rate the program and course management through student surveys. Full time faculty are being evaluated 2015-2016
- **Student Assessment Methods:** Through AWS certification standards and weld quality, the Knowledge of weld machines and oxy-acetylene set-up and break down, also comprehension of the different welding processes and safety standards in the welding industry.

Facilities/Budget

- **Budget Changes over past 4 years:** The budget has been reduced by close to 20% in the last four years.
- **Instructional Materials (software, supplies):** In 2013 a welding computer lab was added to the weld shop with five computer available for use.
- **Equipment lists and needs:** the welding shop is in the process of liquidating outdated and obsolete equipment to make more room in the shop.
- **Facilities lists and needs:** The Program has funding for a simulation yard to simulate welding in position and industrial job sites.
- **Student Fees:** The program imposes standard institutional fees.

Progress of Planned Projects

- Describe progress made for each project activities planned for prior year.

NOT REQUIRED FOR 2013-2014 PROGRAM REVIEW

PART B: Program Outcomes Data Review

Student Learning Outcomes - Measures - Thresholds

List program outcomes; include the means of assessment and assessment threshold criteria:

Outcome 1	Measureable Criteria	Measurement Tool	Courses	Time Frame
Set up and operate manual and semi-automatic welding and cutting equipment used in the metal fabrication industry.	Achieve a satisfactory score based on established rubric	Demonstration of knowledge and skills through field internship.	WLD110 Welding Workshop: Certification Prep	Winter Year 1

Results: 83% passed A.W.S. Weld Certification tests; 17% passed with "C" or better.

Analysis: Practical test @ 20%; lab/participation @ 80% of grade. **Plan:** Implement 2 weeks more of thin wall flat plate O/G with smaller electrode.

Outcome 2	Measureable Criteria	Measurement Tool	Courses	Time Frame
Perform basic layout and fabrication skills to produce welded metal parts and projects.	Achieve a satisfactory score based on established rubric.	Demonstration of knowledge and skills through field internship.	WLD4047 Advanced Welding Workshop	Winter Year 2

Results: 100% passed with "C" or better.

Analysis: Lab participation @ 80%; projects @ 20% of grade.

Plan: Promote projects to 30% of grade; create an art sale/Lab to specialize 1 process.

Outcome 3	Measureable Criteria	Measurement Tool	Courses	Time Frame
Read and interpret blueprints and American Welding Society standard welding symbols.	Achieve a satisfactory score on prescribed projects based on established rubric.	Demonstration of knowledge and skills through field internship.	WLD4155 Fitting and Fabrication	Fall Year 2

Results: 100% passed with "C" or better.

Analysis: Lab participation @ 80%; projects @ 20% of grade.

Plan: Lab projects to 40%; participation to 60% of grade to promote art projects & critical thinking skills

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Outcome 4	Measureable Criteria	Measurement Tool	Courses	Time Frame
Perform as a team member and practice skills that reflect professional and ethical behavior in the workplace.	Achieve a satisfactory score on prescribed pipe project based on established rubric.	Demonstration of knowledge and skills through field internship.	WLD210 Welding Workshop: Certification Prep	Spring Year 2

Results: 75% passed A.W.S. Weld Certification test; 25% passed with "C" or better.

Analysis: Lab participation @ 80%; practical @ 20% of grade.

Plan: Established more "log book" lay-out of weld bead profiles and amounts per passes

Outcome 5	Measureable Criteria	Measurement Tool	Courses	Time Frame
Demonstrate ability to fit, layout, and weld pipe in accordance to industry AWS and API standards.	Achieve a satisfactory score on prescribed pipe project based on established rubric.	Demonstrated performance	WLD4153 Pipe Fitting Workshop	Spring Year 2

Results: 43% passed A.W.S. Pipe Weld Certification test; 57% passed with "C" or better.

Analysis: Lab participation 80% of grade; practical @ 20% of grade.

Plan: More/repetitive instructor demonstrations & lectures on positioning rod angles and motions.

PART C: Program Operational Data Review

I Enrollments

Exhibit I.A: Total Enrollments – Program

Exhibit I.B: Number of Students in Major, if applicable

Exhibit I.C: Student Demographics (optional)

- **Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps**

In 2011 and 2012 the enrollment increased due to the CBJT grant that funded the mobile welding lab. The Data shows that the number in the last two years have gone back to their pre grant enrollment. Our enrollments averages are 30 to 40 first year students. Our second year completers has doubled over the last four years.

It is forecasted that in the next five years the US will be short over 500,000 welders. This should cause an increase in future enrollments.

- **Respond to the data evidence – how will the data results be utilized to enhance and improve program enrollments, list specific planned projects**

- 1) Continue with local recruitment within high schools around the county
- 2) Work on updating and cleansing the shop of outdated or obsolete tools

II. Financial Viability

Exhibit II.A: Student FTE

Exhibit II.B: Billing Credits

Exhibit II.C: Cost / FTE

- **Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps**

- The FTE increased in 2011, due to the CBJT grant being at its peak for recruitment with the mobile welding lab.
- The FTE has decreased back to the Pre CBJT grant numbers as in 2010.
- The budget has been increasing over the last four years because of steel and other supply increases as well as adding another full time faculty member in 2013.

- **Respond to the data evidence – how will the data results be utilized to enhance and improve the financial viability of the program, list specific planned projects**

- 1) Develop a recruitment plan to help get FTE back to the peak CBJT grant numbers.
- 2) Look into a portable power supply for running the college on.

III. Efficiency of Delivery

Exhibit III.A: Average Class Enrollments

Exhibit III.B: Student FTE to Faculty FTE Ratio (1 Faculty FTE = 45 Workload Credits)

Exhibit III.C: Course Capacity Percentage (section enrollment is what percent of section capacity)

- **Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps**
 - The average course enrollment has maintained since 2012, with about a 60% fill rate in the classes.
 - The student to faculty FTE ratio has varied over the last four years because of full time faculty being added and some part time faculty leaving, this has put faculty into overloads.
 - The decrease in the enrollment in the last two years has had an impact by lowering the student FTE.
- **Respond to the data evidence – how will the data results be utilized to enhance the efficiency of delivery associated with the program, list specific planned projects**
 - 1) Monitor enrollment

IV. Instructional Effectiveness

Exhibit IV.A: Course Retention – completion rate

- **Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps**
 - The Course retention rates spiked in 2012 with an 89% of completion. In the last two years the rate of completion has drop by three percent. The average completion rate is 86%
 - In this program the physical and skill demands that are required for success in the classes will reflect the average completion rates as not everyone is able or desires to complete the program.
- **Respond to the data evidence – how will the data results be utilized to enhance and improve instructional effectiveness of the program, list specific planned projects**
 - 1)

V. Program Student Success

~~Exhibit V.A:~~ Program Persistence from Persistence Report (being developed)

~~Exhibit V.B:~~ Program Completers (Graduated) (unduplicated student count)

~~Exhibit V.C:~~ Program Awards (all certificates and degree, duplicated)

~~Exhibit V.D:~~ Transfer Rate (student who did not graduate yet transferred) from Transfer Report (being developed)

~~Exhibit V.E:~~ Transfer Figures from Transfer Report (being developed)

- **Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps**

N/A

- **Respond to the data evidence – how will the data results be utilized to enhance students success within the program, list specific planned projects**

N/A

VI. Program Relevance

Exhibit II.A: OLMIS Reports Demonstrate Employment Opportunities - OLMIS **DATA:** <http://www.qualityinfo.org/olmis/OlmisZine>

Exhibit II.B: Advisory Committee Recommendations

- **Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps**
- From QualityInfo.org, We found 22 occupations with at least 33% skills overlap that heavily utilize what's taught in our programs. As individual occupations, projected growth goes from much higher than average to slightly lower than average, across the region, state and nationally. But when we look at state demand across all occupations as an aggregate, as illustrated in the map below, we see that Oregon has a 2012-22 projection for those jobs in this area that is much higher than average, so we believe this program will sustain, if not grow, beyond the current projections.

Occupations that utilize what's taught in our programs	Skill Overlap
Welders, Cutters, Solderers, Brazers*	100%
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders*	66%
Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and	33%
Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	33%
Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	33%
Forging Machine Setters, Operators, and Tenders, Metal and Plastic	31%
Foundry Mold and Coremakers	31%
Heat Treating Equipment Setters, Operators, and Tenders, Metal and Plastic	35%
Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	35%
Layout Workers, Metal and Plastic	40%
Metal Workers and Plastic Workers, All Other	40%
Milling and Planning Machine Setters, Operators, and Tenders, Metal and Plastic	35%
Model Makers, Metal and Plastic	34%
Patternmakers, Metal and Plastic	34%
Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	38%
Pourers and Casters, Metal	30%
Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	33%
Sheet Metal Workers	36%
Structural Iron and Steel Workers	39%
Structural Metal Fabricators and Fitters	34%
Tool and Die Makers	33%
Tool Grinders, Filers, and Sharpeners	36%

* Primary occupations for program

Respond to the data evidence – how will the data results be utilized to ensure program relevance of the program, list specific planned projects

We see a possibility in a 2-5 years the opportunity for the local program completers to participate in the skilled labor, largely in our area, for the proposed liquid natural gas pipeline just a few miles from the college.

VII. Graduate Student Success: Oregon 4 Year Completion Data, Wage Match Data, Placement

Exhibit VI.A: 4 Year Achievement (if available) N/A

Exhibit VI.B: Wage Information (if available)

Exhibit VI.C: Placement Rates (if available)

- **Reflect upon the trends, what does the data tell you, what has been accomplished/achieved and where are the gaps**

When we look at wage statistics across these occupations, see annual averages comfortably in the middle-class range, usually \$35,000 and above



- **Respond to the data evidence – how will the data results be utilized to enhance and improve graduate student success**

Within the program, list specific planned projects

So we feel that continuation and continued best of practice ideas coming from our advisory board will keep our program relevant to not only our region, but for any welding or fabrication across the world, for the technical skills we teach are that universal.

PART D: Systemic Program Projects

Systemic Program Enhancements and Projects Not Addressed in Program Outcomes or Operational Data Analysis Data

Address systemic issues:

Proposed Systemic Project(s):

Assessment Category	No Evidence (1 pt.)	In Development <30% (2 pt.)	Implemented in Some Areas 30-80% (3 pt.)	Fully Implemented 81-100% (4 pt.)	TOTAL SCORE
Welding					
Development of course outcomes				x	4
Mapping course to program outcomes				x	4
Multiple Assessment measures documented and mapped to program outcomes				x	4
Course Assessment data collected and analyzed			x		3
Assessment Data used to improve course teaching / learning and is documented			x		3
Total					18

• **Program Size:** Review of unduplicated student FTE (all terms) in discipline courses in prior year

Welding 48.76

>50 FTE (20 pt.)

30-50 FTE (17 pt.)

20-30 FTE (14 pt.)

15-20 FTE (10 pt.)

10-14 FTE (7 pt.)

<10 FTE (5 pt.)

Proposed Productivity: Percent of students in all discipline classes for a year that earned C or better compared to number of students enrolled in same classes at end of second week

Welding

>95% (20 pt.)

90-95% Growing (18 pt.)

80-90% Maintaining (16 pt.)

70-80% Dropping (14 pt.)

60-70% (10 pt.)

<10% (5 pt.)

• **Program Cost:** Cost of program per student FTE in prior year

Welding \$3735.73

< \$1000/FTE (20 pt.)

\$1-2000/FTE (17 pt.)

\$2-3000/FTE (14 pt.)

\$3-4000/FTE (10 pt.)

\$>4000/FTE (5 pt.)

OVERALL PROGRAM VIABILITY SCORE:

Welding 43

PART E: Program Project Timeline – All Projects - Welding

Activity Timeline that includes core theme association, staff lead responsibility, start and projected end dates, association with other planning activities (academic master plan, technology plan, facilities plan), association with instructional projects.

Project	Person Responsible	Activity Year	Budget Request (for 2016 activities only)	Core Theme/Objective	Associated Plans	Associated Projects
1. Hossfeld Universal Bender And Scroller	C. Clemens	2016-17	\$925.00	Lifelong learning For the students	Labs A & B 2 nd YR projects Scrolling SP – LA.3 AMP	Art Sale Outside projects
2. Hazardous Substance Possession Fee	C. Clemens	2015-16	\$283.00	Sustainability to the college in using Acetylene	To keep acetylene @ SWOCC SP – S.1	
3. Planetary Ring Roller	B. Thurman	2016-17	\$598.00	Community engagement with sale of art projects	Labs A & B SP – CE.2 SP – S.1 AMP	Radius Projects
4. Portable Power Plant	B. Thurman	2016-17	Look into	Sustainability of the college to produce its own power	Power shop SP – S.2	
5.						
6.						
7.						

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