

**Cerritos College
Instructional Program Review**

Instructional Program Review Submittal Form (Appendix F)

This form is completed and submitted as a cover sheet for the self-study report

Name of the Program WELDING DEPARTMENT

Date Submitted Fall 2017

Scheduled Presentation Date Fall 2017

All courses in the program have been reviewed by the Curriculum Committee within the last six year cycle (circle one) Yes No

Explain any exceptions for non-compliance with curriculum requirements:

The self-study report adequately addresses the following components:

Description of the Program	Yes	No
Course and program content	XX	
Student demographics	XX	
Human resources	X	
Instructional Improvement	Yes	No
Teaching effectiveness	XX	
Activities to improve student learning	XX	
Course grading	XX	
Course and program completion	XX	
Program outcomes	XX	
Core indicators (if vocational)	XX	
Student feedback	XX	
Institutional data	X	
Other	Yes	No
Strengths and weaknesses of the program	X	
Opportunities and threats of the program	XX	
Goals of the program	XX	

Self-Study prepared by: Jason Foral (Dept. Chair)

Reviewed by (Division Dean): [Signature] 4/18/18

**Cerritos College
Instructional Program Review**

Instructional Program Review Checklist (Appendix G)

This form is completed by the IPR committee during the review of each program's self-study report presentation (Phase 4)

Name of the Program Welding

Visitation Date 12/5/17

IPR Committee Liaison Graciela Vasquez

Evaluation of Compliance with Institutional Requirements	Yes	No
All courses in the program have been reviewed by the Curriculum Committee within the last six year cycle?	X	
Program is in compliance with guidelines established by the Student Learning Outcomes task force?	X	
Institutional Data used is current as of the draft due date?	X	
Program and Primary Data included information which is less than 2 years old?	X	

The self-study report adequately addresses the following components:

Description of Component

Description of the Program	Yes	No
Course and program content	X	
Student demographics	X	
Human resources	X	
Instructional Improvement	Yes	No
Teaching effectiveness	X	
Activities to improve student learning	X	
Course grading	X	
Course and program completion	X	
Program outcomes	X	
Core indicators (if vocational)	X	
Student feedback	X	
Institutional data	X	
Other	Yes	No
Strengths and weaknesses of the program	X	
Opportunities and threats of the program	X	
Goals of the program	X	

Cerritos College
Instructional Program Review

Instructional Program Review Approval Form (Appendix H)

Committee Action taken:

Approved



Not Approved



Excellent Report!

Recommendations:

Program Review Chair

S. Noseblatt / A. Conley

Explanation for non-approval:



CERRITOS

COLLEGE

WELDING

DEPARTMENT

**Instructional Program Review
Self-Study Report**

Fall 2017

Submitted by: Jason Foral

Section 1

Welding Department Mission Statement

The vision of the Cerritos College Welding Department is to train and educate the diverse population of student learners in order to prepare them for entry into the welding industry. The program's students will acquire knowledge, skills, and experience to replenish the current workforce while making a great positive impact on society's infrastructure.

The mission of the Welding Department is to advance the science of welding through education and training. The curriculum is designed to benefit all levels of student learners, as well as develop and enhance their welding knowledge and skill attainment. The Department provides the highest level of quality instruction and a learning environment that promotes student achievement and technical skill mastery.

The strength of the program lies within the commitment and dedication of the instructors and staff to provide the highest level of opportunity for welding education coupled with the support of an administration that provides the department with the financial means to accomplish its mission and goals. The Department strives to meet the industries needs by training and preparing new and continuing students for job placement upon completion of their courses. The Department prides itself on assisting students currently working in the industry to achieve a variety of welding certifications, which are necessary for career advancement in their respective fields.

Description of the Program

The Cerritos College Welding Program is a Vocational Education / Career Technical Education Department committed to providing high quality, academically rigorous instruction with a comprehensive curriculum that respects the diversity of the student body and the region. The Program is a multifaceted educational program providing training in the major areas of welding technology. The Program provides a technologically advanced educational opportunity allowing students to pursue a variety of educational goals including the attainment of four possible Associate Degrees and Program Certificates, Welding Certifications and Licenses, and occupational skills. Achievement of these goals is strongly supported with instruction in skill development as well as student and instructional support services.

The curriculum provides training beginning with four basic entry courses, which are prerequisites to progress to intermediate and advanced offerings in four welding specialty program Certificate and Degree areas:

1. Arc Welding
2. Gas Tungsten Arc Welding
3. Pipe Welding
4. Structural Fabrication

The Department is considered by many in the welding industry to be California's leading welding education program. The L.A. City Department of Building and Safety uses the Cerritos College Licensed Welding Certification Testing Laboratory as the "Role Model" for all other test laboratories to follow. The City of L.A. also refers people who contact their office seeking welding licenses and certifications to the College for training. These referrals are a result of the L.A. City Welding Licensing Division issuing more licenses to graduating Cerritos students than any other college Welding Program.

Welding Department Institutional Overview

The Cerritos College Welding Department is recognized nationwide as a leader in welding education. The Program operates six days a week from 7:00 a.m. to 10 p.m. The 12,000 square foot indoor and outdoor lab areas feature 76 welding stations which provide students practical welding experiences on ferrous and non-ferrous plate, pipe, and sheet metal using the SMAW, GTAW, GMAW, FCAW, and OAW processes on state-of-the-art equipment. The Department also features three lecture classrooms, two of which have been updated to smart-classrooms.

Specialty courses offered unique to the Cerritos Welding Department includes: Structural Fabrication, Pipe Layout, Print Reading, Shop Math, and Welding Code classes. The Program is fully approved and licensed to administer AWS, ASME, API, and State Welding Certifications and specializes in the Los Angeles City Department of Building and Safety Welding Certifications and Licenses. Full-time Certified Welding Inspectors (CWI) are on staff as well as professors and instructors noted for their expertise in the art of welding. Free job placement assistance is offered to all students. Day, evening, and weekend classes are designed to meet the needs of every student. Over 1,000 students have acquired their certifications at Cerritos College.

Course and Program Content

Courses are constantly updated as the welding industry's needs evolve and additional welding skills and certifications are required. The Department makes changes and improves curriculum as recommended by its Industry Advisory Committee. The Department also considers the recommendations of other industry contacts such as: vendors, unions, company visitations, industry contacts, as well as the recommendations of the department's part-time instructors who work full-time in the industry. Course development occurs in a wide variety of areas including: classroom instruction, laboratory demonstrations, and laboratory assignments. Course updates and revisions are submitted and approved by the Curriculum Committee on a tri-annual schedule.

The Welding Program offers an Associate Arts Degree in Welding Technology. To achieve this degree the student must complete the normal general education requirements, electives, and the Welding Departments requirements to achieve the minimum required 60 units. The degree requirements of the Program are as follows:

- Complete the basic core welding courses.

- Complete the remaining upper level specialty course requirements for one of the four Program Certificate options. The Department offers various specialty courses in support of these four certificate options. Classes are offered both days and nights. Some of the more advanced specialty courses are rotated from days to nights or afternoons every other semester. Scheduling of classes in this way provides students with the opportunity to complete their objectives within the shortest time frame possible. This also provides students with the opportunity to work toward the completion of multiple certificate options at the same time.
- The suggested sequence of courses within the program allows students to make progress in a timely and logical manner. Since welding is in large part a hands-on skill, the department uses a building block approach in the delivery of its instruction and curriculum. For example, if a student completed WELD 120 (Beginning Arc Welding), they would then take WELD 200 (Intermediate Arc Welding), followed by WELD 210L (Advanced Arc Welding Applications). WELD 212L and WELD 214L are then offered next as there are several certifications in Arc Welding and not all students progress in the same time frame. These two Advanced Arc Welding Specialty labs extend opportunities for skill development. The same sequential process is used if they intend to specialize in Inert Gas Welding or Pipe Welding or Structural Fabrication.
- The Welding Program currently does not have Articulation Agreements with other schools or programs. The Department is in conversation with area High Schools regarding the development of an agreement to allow students to take the WELD 100 (Introduction to Welding) course in their High School Welding Program for Cerritos College course credit. The agreement would be limited to the WELD 100 course only with the requirement of any additional courses to be taken at Cerritos College. This would also be facilitated by the High School Bridge Program, which allows students at a minimum age of 16 that are in good academic standing to enter the Cerritos College Welding Program while concurrently enrolled in High School.
- The Welding Department continually supports the Cerritos College Teacher TRAC Program. This program provides a paid teaching assistant internship using Teacher TRAC grant funding to students that show interest in teaching a vocation at the college level. An average of four interns are selected to work with various instructors. The intern's responsibilities include direct engagement with the students in lecture and laboratory sessions as well as assisting the instructors with traditional responsibilities outside of the classrooms. The Program has proven very effective as three out of the last four Welding Department instructor recruitments were previously involved in the program as interns. The partnership provides support to the goals of the Welding Department by increasing the adjunct pool to facilitate program growth.
- Students working toward earning a Program Certificate or Degree simultaneously work towards the obtainment of various welding Certifications and Licenses. Completion of Certifications and Licenses is a concurrent goal integrated into laboratory training,

assignments, and projects. Welding Certifications and Licenses are recognized throughout the welding industry and are a requirement by most employers.

- In the past, courses within the Welding Program did not interact with other campus programs. Over the past two years, the Welding Program has diligently encouraged welding students to “cross-train” in other Career Technical Education Programs. The Department offers students information about the other programs and provides guided tours of their facilities. Beginning two years ago, an Industrial Arts program was offered. Completion of this program required students to complete the entry-level course for most of the Technology Division’s programs. Although students were well informed about the opportunity, interest has been minimal amongst students. The Welding Department Chair, along with the support of the Technology Dean, has begun the process of modifying the program into an appealing Certificate/Degree re-titled “Manufacturing Specialist”, which will have a streamlined list of required classes focused on manufacturing.

Equipment

The state-of-the-art training equipment used within the program is necessary for student success. The Programs equipment is selected based on welding industry standards. This provides students an invaluable real-world experience while they learn safe and proper operating procedures on equipment they are probable to work with in the future. In general, the Department Chair has taken responsibility to ensure that shop equipment is in a continual state of update and replacement facilitated by a successful grant writing campaign while aligning with the equipment replacement recommendations of the Industry Advisory Committee, which is focused on keeping the program current with industry. The ultimate goal is to provide students a learning experience with shop equipment that is less than 10 years old.

Technology

The Program encourages skill development using technology. Students in most lecture classes are required to use computers and the internet to conduct research for various topics pertaining to welding equipment, procedures, specifications, metal alloys, building codes, etc. This process provides students with an understanding of welding topics by combining theoretical knowledge and hands-on computer experience while facilitating them in becoming self-sufficient in their research. This method assists the academic requirements of the program as well as the development of technology comprehension and motor skills, which are evolving into a necessity in some parts of the welding industry.

Faculty, Staff and Management Resources

Any Vocational Program is only as good as its instructional staff. A qualified, energetic, dynamic, caring faculty provides the foundation of the Welding Program. Currently, the

Welding Program includes four full-time faculty, four adjuncts, and one shop technician. Part-time instructors are hired on their qualifications, performance, and effectiveness as an instructor. Faculty must have extensive knowledge and experience in order to teach the programs challenging advanced courses. Adjunct instructors, while highly qualified in most areas of the welding field are scheduled to teach classes in which they are industry experts. All current part-time instructors also maintain full-time careers in the welding industry with the exception of one retired former faculty member who returned to teach part-time.

All instructors are multi-certified welders with some holding over a dozen certifications in various welding processes. Four instructors are American Welding Society (AWS) Certified Welding Inspectors (CWI) and AWS Certified Welding Educators (CWE). The part-time instructors that do not have these endorsements are currently working towards achieving them. All Instructors have a minimum of six years of full-time industry welding experience with the overall average of about 20 years experience. The Program's shop technician is also a certified welder and certified testing technician. He performs the destructive weld testing for the College's Licensed Welding Test Laboratory.

Scheduling

All instructors are scheduled to teach courses by the Department Chair. The Department Chair works closely with the instructors as he assigns them to courses they are most qualified to teach while taking into consideration their outside obligations for scheduling purposes. Faculty, whenever possible, are scheduled to teach at the same time as adjuncts for mentorship, supervision, and to ensure that safety practices are properly adopted.

Advisory Boards

The Welding Department's Industry Advisory Committee is made up of members from the local welding community. Committee members represent companies such as Disneyland, Honeywell Aerospace, Chevron Petroleum, L.A. City Department of Building and Safety, L.A. Metro, Haynes Electrical Power Plant, as well as Journeymen and Business Agent representatives from the Elevators, Iron Workers, Technical Divers, and Pipe Trades Unions. These members provide the department with current information regarding the immediate needs of the local welding industry. Recommendations are discussed, voted on, and then implemented where appropriate into the program's laboratory projects and curriculum. The Department conducts a minimum of two advisory meetings each year.

External Agencies

The Welding Department has developed several successful working relationships with outside agencies. Welding standards, certifications, testing procedures, and quality control

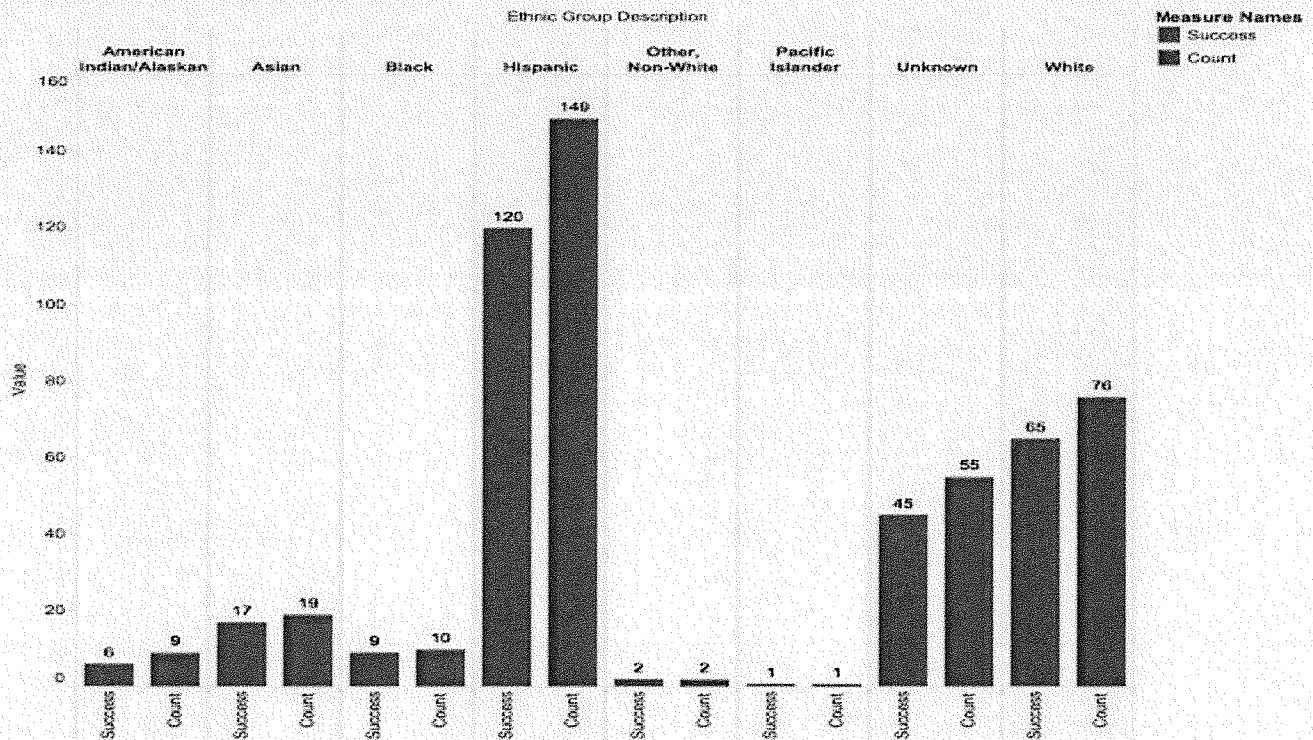
have been established and are regulated by City, State, and National agencies. These agencies include the Los Angeles Department of Building and Safety, American Welding Society, American Society of Mechanical Engineers, and the American Petroleum Institute.

The Department is Certified and Licensed on an annual basis to the American Welding Society standards as a weld-testing laboratory by the Department of Building and Safety, City of Los Angeles. This enables welding students, welding companies, and the welding community in general to use the Cerritos College Welding Laboratory to perform welding certification testing and obtain various welding licenses and certifications that are recognized and honored nationwide for employment.

From 1990 to present, the City of Los Angeles has used the Cerritos College Welding Test Laboratories established policies, rules, and destructive testing procedures as their model and standard for the other nine L.A. County licensed test facilities to follow. This was a result of the department's innovative test procedures, trust, honesty, high level of quality control, and accurate documentation.

Student Demographics

Disproportionate Impact by Subject



Success and Count for each Ethnic Group Description. Color shows details about Success and Count. The data is filtered on Term Description and Course Subject. The Term Description filter keeps 2010 Fall. The Course Subject filter keeps WELD.

- The student body population of the Welding Department typically reflects the campus's wide diversity of ethnic and socioeconomic levels. Please refer to Strength #6 below for specifics on Grade Distribution Data.

- The Welding Program typically differs from the campus overall in regards to gender population. The Welding Department has a very low percentage of female students making up approximately 5%, which is far below the overall campus population average of over 50%.
- The Programs population size has recently increased as of the Fall 2017 semester due to the hiring of two new Faculty members which are each teaching full loads with maximum overload.
- Most students entering the welding program have little or no welding experience. These students typically start with beginning courses followed by working their way up through the advanced courses that ultimately provide them with the skills needed to enter a career as a welder. Many of the students in the program are employed full-time in the welding industry and are returning to school to obtain Welding Certificates, Degrees, Certifications, and Licenses. Employed student welders who upgrade their skills give themselves a distinct advantage for salary increase, promotion, position advancement, and career opportunities.

Welding Department Recent History

Historically, the Welding Department has been considered fully staffed with four faculty members and various adjuncts. This number of faculty is historically acknowledged as the minimum staff requirement to completely offer and operate all four of the department's specialized Welding Certificate and Degree Programs. Beginning in 2010, the department began losing faculty members to retirement without being immediately replaced. This continued through early 2015 ending with the department being operated by only one faculty member for those last couple years.

The resulting impact of the loss of faculty members proved to be detrimental to program offerings as many were reduced or eliminated as follows:

- The entire Pipe Welding program was indefinitely suspended.
- The Structural Fabrication program was only offered during the summer session.
- The morning Arc Welding program was limited to beginning courses only.
- The G.T.A.W. program was limited to a single beginning course in the evening.
- The Intermediate and Advanced courses for both the Arc and G.T.A.W. programs were only offered in the evenings.

The extended impact to students resulted in what would be expected by operating with minimum staff. The Program experienced the inability to meet student demand and student population declined as an overall result. The data in the report below will reflect this.

In 2015 the Welding Department recruited one of its adjuncts into a faculty position and simultaneous Department Chair position. With his focus set on two main goals, the newly appointed Chair immediately began aggressively pursuing facility and equipment upgrades through grant proposals and submitting justified Faculty requests.

Over the last two years, through working closely with supportive administration, the Welding Department has been successfully approved for multiple grants, which enabled the combined purchases of over \$200,000 in welding equipment and shop machinery upgrades to replace broken, dated, and obsolete equipment. The equipment has been purchased to support the G.T.A.W., Structural Fabrication, and Arc Welding Programs and most recently the returning Pipe Welding Program. Additionally, facility safety and student comfort upgrades have been made.

Through the writing of an extensive Faculty Request, the Welding Department was able to secure a department first of two simultaneous faculty recruitment position approvals to fill the remaining vacancies. Interviews were held through the Spring of 2017. Two newly hired faculty were brought on staff along with new courses added to the Fall 2017 schedule. Their positive impact to the program has been immediately observed:

- The Pipe Welding Program is in a state of re-invention with the Beginning Pipe Welding course offered currently in the Fall 2017 semester.
- Intermediate and Advanced Pipe Welding courses will be added in the Spring of 2018.
- A Pipe Layout course will be added in the Spring of 2018.
- Blueprint Reading and Shop Math courses are now offered in the morning. These offerings have never been available in the morning program, as they have always been offered in the evening.
- An Intermediate Arc Welding class is now offered in the mornings.
- Additional courses have been added to the evening and weekend programs.

The Department is currently able to offer three Beginning Arc Welding courses, two Intermediate Arc Welding courses, and two Advanced Arc Welding courses, which are divided amongst three voided courses. Similarly, the Gas Tungsten Arc Welding Program offers two Beginning courses followed by two Advanced course offerings divided amongst three voided courses. The pyramid progression of these courses offers students sufficient opportunities to complete their educational goals in a timely manner while ensuring the department that upper level classes will have a sufficient supply of returning students that meet the prerequisites to

enroll. The Department gratefully anticipates the ability to sustain these current additions to the schedule.

In addition to the Faculty recruitments, the department recruited an additional Adjunct in the Fall of 2016. The Welding Program is proud to have hired its first female welding instructor. She is an alumni, has years of industry experience in aerospace welding, and is proving to be an asset to the program. The Program has also completed interviews for an additional adjunct, which is scheduled to begin in the Spring of 2018. Looking forward, the program may lose one of its senior adjuncts to retirement in the next year or two. To accommodate, a search has begun for an additional adjunct.

Ultimately, the Department is looking forward with anticipation that the data indicators over the next few years will be positively impacted by the recent and projected faculty recruitments and directly related increase in course offerings.

The historical information detailed above should be taken into consideration and will be referenced in reviewing the following Program Review data below.

Section 2

Strengths

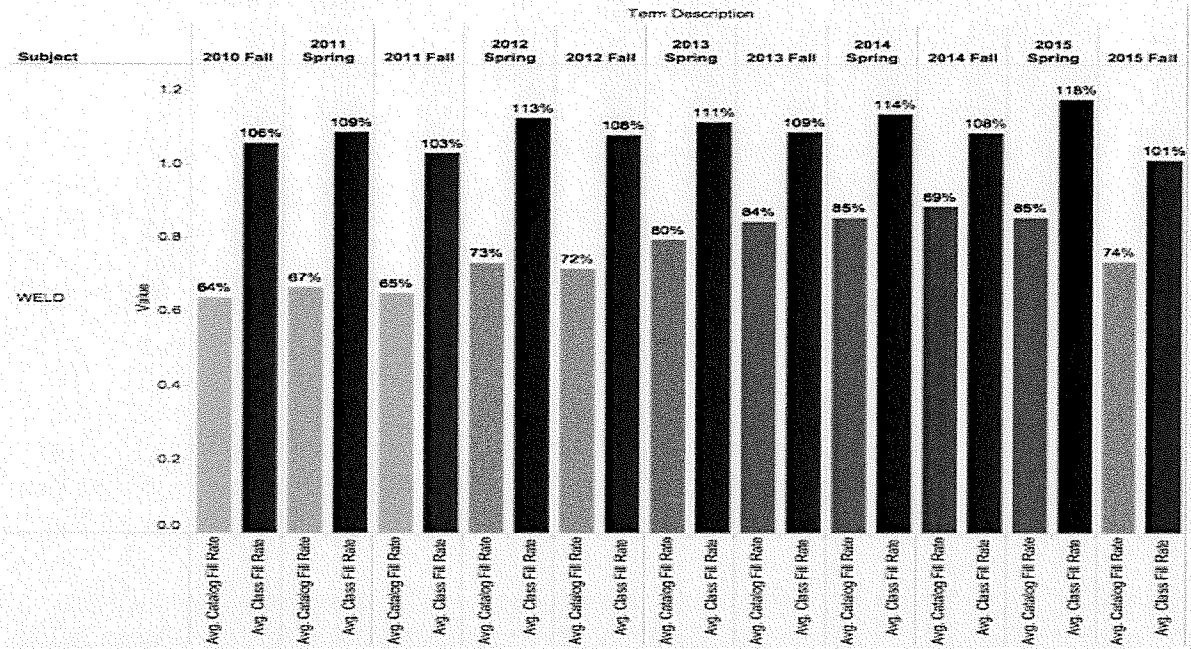
- 1. Enrollment-** For over a decade, the Program has maintained maximum enrollment in all class sections. The Welding Department continues to maximize capacity in each of its respective courses. The Welding classes typically reach peak enrollment and waiting list capacities at a faster pace than the other ten departments within the Technology Division:

Dept	SP 16	SP 17	SP 18*	Average	SP18 as % of average
WELD	58	62	76	65.3	116.3%
WMT	72	74	65	70.3	92.4%
COS	69	97	61	75.7	80.6%
MTT	27	32	19	26.0	73.1%
ARCH	39	39	23	33.7	68.3%
AUTO	158	136	82	125.3	65.4%
ENGT + ET + NPD	56	50	30	45.3	66.2%
AB	60	53	19	44.0	43.2%
PMT + MFGT	14	19	5	12.7	39.5%
TOTAL FOR DIVISION	553	562	380	498.3	

***As of 10/30/17 (5th week of registration)**

This is also typical in comparison with the overall Catalog Fill Rates as seen below. The chart illustrates this with over 100% Fill Rates every semester for the last 5 years. In general, welding course rosters and waitlists continually fill weeks before a semester begins, overall 6-year trend for Enrollment is consistently well above average:

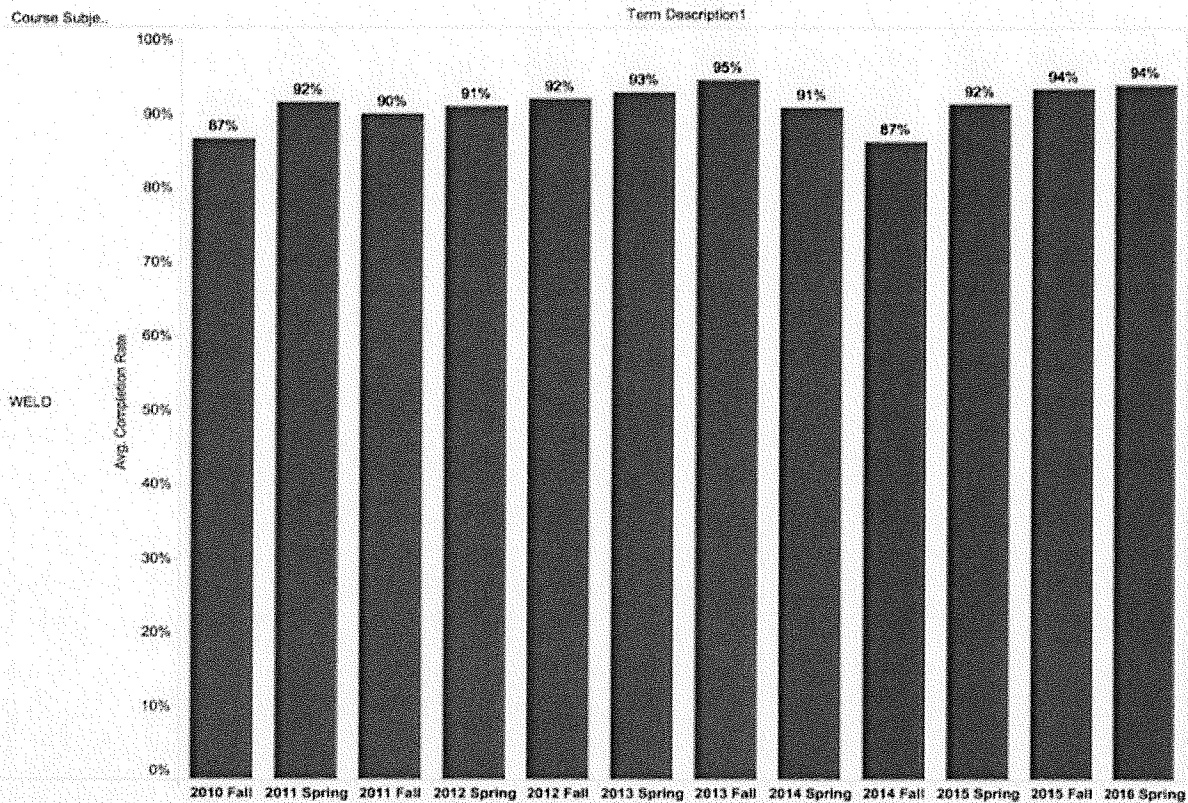
Program Fill-Rates (Catalog & Class)



Avg. Catalog Fill Rate and Avg. Class Fill Rate for each Term Description broken down by Subject. Color shows Avg. Catalog Fill Rate and Avg. Class Fill Rate. The data is filtered on Catalog Number, which excludes Null. The view is filtered on Subject and Term Description. The Subject filter keeps WELD. The Term Description filter excludes 2011 Summer, 2012 Summer, 2013 Summer, 2014 Summer and 2015 Summer.

2. Program Completion Rate- The Welding Department continually exhibits excellent completion rate averages ranging from 87% - 95% over the last six years:

Program Completion Rate



Average of Completion Rate for each Term Description1 broken down by Course Subject1. The view is filtered on Term Description1 and Course Subject1. The Term Description1 filter excludes 2011 Summer, 2012 Summer, 2013 Summer, 2014 Summer and 2015 Summer. The Course Subject1 filter keeps WELD.

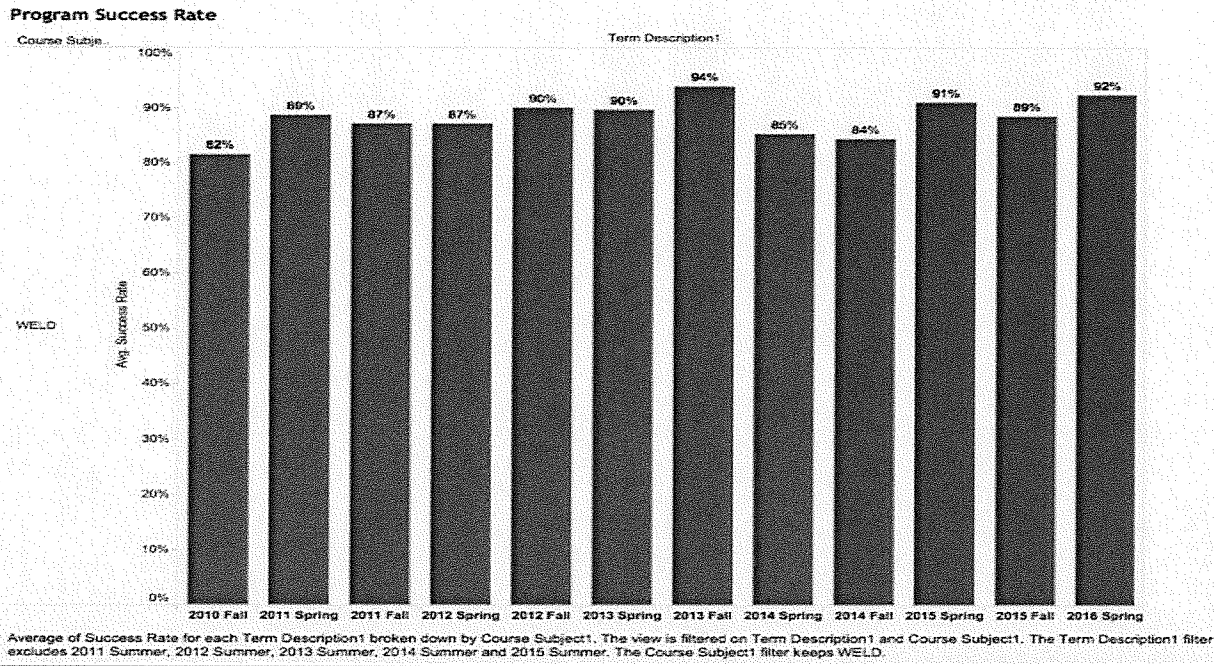
The Program's retention rates are often times affected by students obtaining full-time employment throughout the semester. Due to various work hours and family responsibilities students may be required to leave the department before completion of a particular program goal. This contributes to a lowering in the retention rate, which can often be a sign of a very successful Career Technical Education program. Early job placement may cause retention statistics to look misleading and negative when in fact the Program is thriving by achieving its goal of assisting students in obtaining entry-level type employment.

Both Program and Course Completion Rates were equally satisfactory.

Additionally, the Welding program retention rates were consistently above the ACCJC / Institution set standard of 83% for the last 6 years and will help the College meet their goal.

Overall 6-year trend for Completion / Retention Rate is excellent and stable.

- 3. Program Success Rate**- The Welding Department continually experiences excellent average success rates averaging in the 82% - 94% range over the last six years:



Additionally, the Welding Program Success Rates were above the ACCJC / Institution set standard of 71% for the last 6 years and will help the College meet their goal.

Both Program and Course Success Rates were equally satisfactory. WELD 49, 51L, 56L, 58L, 60, 82L, 100, 120, 130, 170, 200, 210L, 212L, 240, and 240L, had consistently high success rates at around 80% or more.

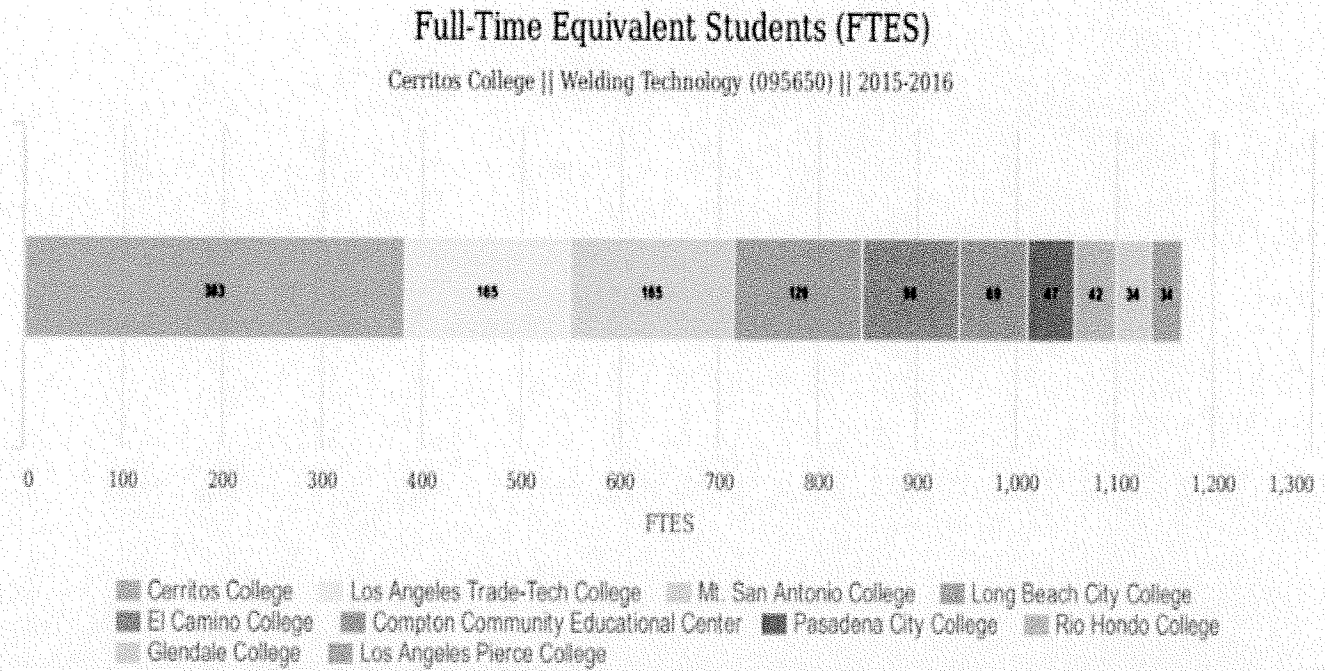
Overall 6-year trend for Completion / Retention Rate is excellent and stable.

4. **Full Time Equivalent Students (FTES)**- Over the last 6 years, the FTES for the welding program had a slight upward trend for 3 years, followed by a slight went downward trend again over the last 3 years due to faculty retirements and reduced number of classes offered. The high was in 2013-2014, with numbers at 149.81. The low was in 2010-2011, with numbers at 116.84:

	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Welding	116.84	127.03	132.3	149.81	118.96	128.4	148.33

Overall the Welding Department is consistently contributing to the College's target goal of 18,000.

On a larger perspective, a comparison of the most recent data available indicates that the department operates the largest welding program in the region as illustrated in the chart below:

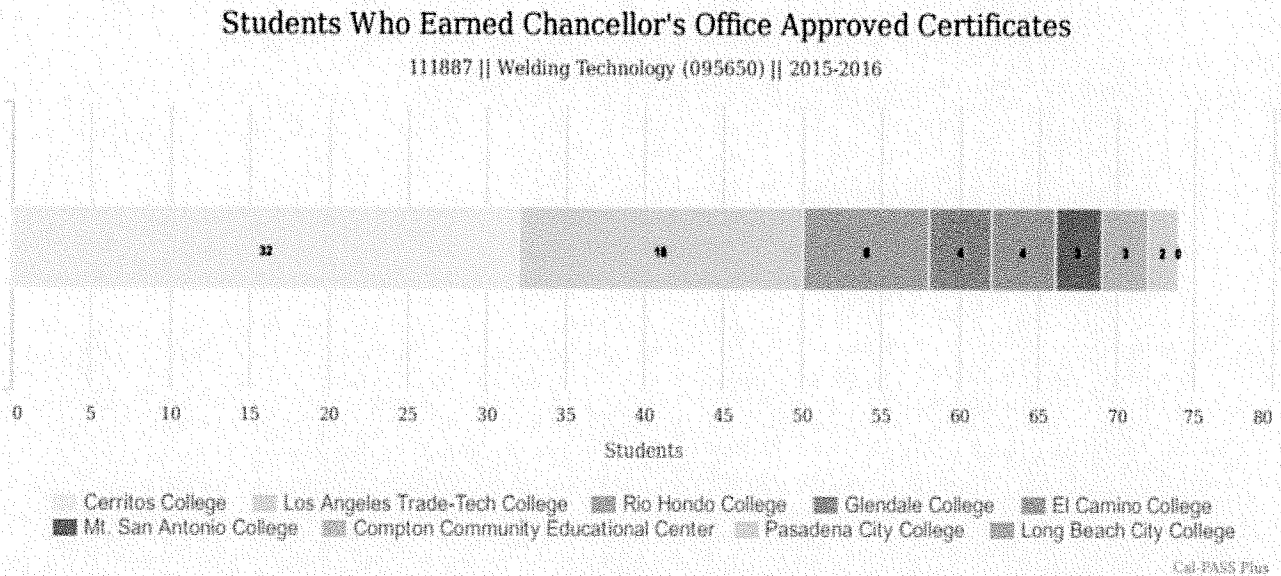


5. Certificates and Degrees Awarded- The most recent data on annual Certificates and Degrees awarded reflects the departments retirement and recruitment activity over the last 6 years. Overall, an upward trend is illustrated. The Department is confident the totals will continue to rise with the newly hired faculty's ability to expand course offerings:

	2011	2012	2013	2014	2015	2016	Total
Welding Certificates	14	12	51	23	42	56	198
Welding Degrees	1	4	17	7	48	15	92

Overall, the department recognizes the importance of increasing the number of Certificates and Degrees awarded while understanding they are doing an exceptional job.

The most recent large perspective comparison of regional data available indicates that the Department operates the most successful Welding Program in the area as illustrated in the chart below:



6. **Grade Distribution Data**- Pass rates of Welding students remained consistently high during the last six Fall terms, where the substantial majority successfully completed their courses versus not passing. The majority of students received an A or B grade, which stayed consistent during the past six Fall terms. Of the students who did not pass their WELD course, the majority did so because they withdrew from the course. The program is dominated by male enrollments, and students between the ages of 20-24 had the highest pass rates. Compared to White students, the success rates of Black students were 66% lower, Filipino students were 48% lower, and Pacific Islander students were 31% lower. Compared to fall 2010, Hispanic students exhibited higher success rates on average; Fall 2013 had a 18% higher success rate than Fall 2010.

7. **Grants**- For over a decade, the department has aggressively participated in all possible grant proposal opportunities. The department is very fortunate to have had many of these proposals approved and funded. This has given the program the opportunity to replace more than half of its welding machines with new, state of the art, technologically advanced equipment.

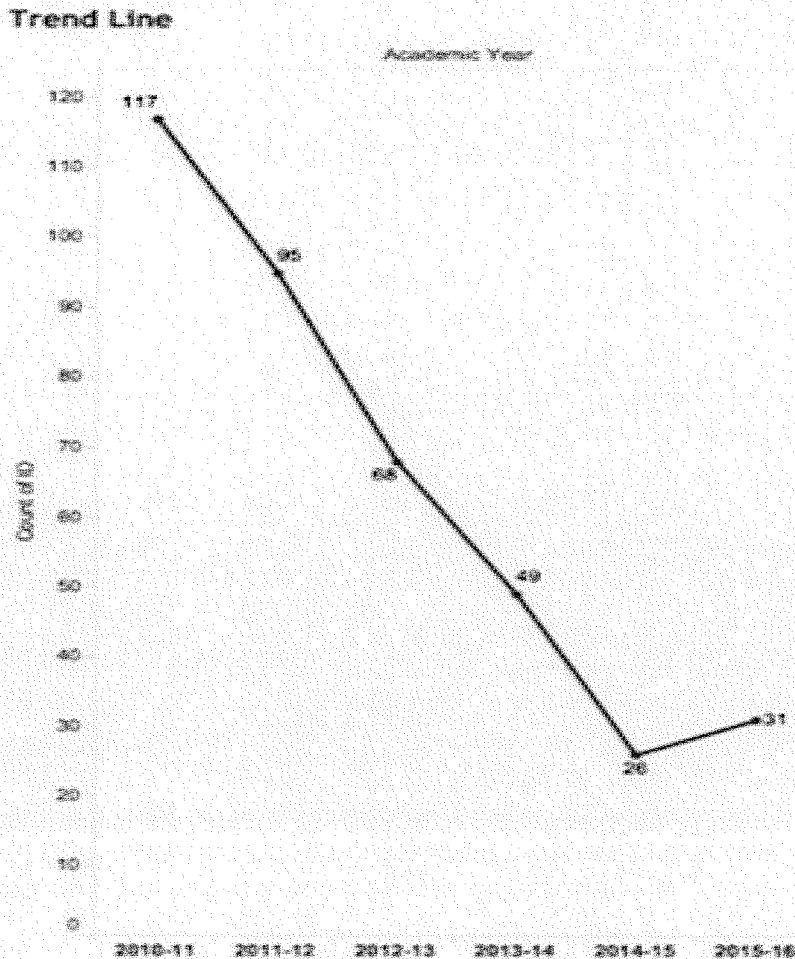
The Department is currently offered two grant opportunities a year. This last year both the IPII and Strong Workforce grant proposals were approved. The IPII grant enabled the purchase of eight new GTAW welding machines for the aerospace welding program. This was useful in helping the department replace the dated non-efficient welding machines with new machines that require much less energy to operate. Through the Strong Workforce grant the department was able to purchase a new hydraulic sheet metal shear to further support the aerospace welding program.

These new machines provided an immediate positive impact on student SLO completion ratios as they are utilized directly by the students in multiple classes to develop and advance skills, which are integrated into the SLOs. These new machines also provide students the opportunity to learn advanced techniques with equipment commonly found in industry. This new equipment provides opportunities for teaching students with the most current technology and places the Program in a strong position to continue its educational mission for many years to come.

8. **Overall Analysis of Strengths**- Students typically seek to enroll in the Cerritos College Welding Program based on multiple factors that reinforce the department's unparalleled reputation of Welding Programs in the region. These factors include a continuously updated state of the art welding facility operated by highly qualified Faculty, as well as many diverse course and certification offerings, some of which are only found at Cerritos College. Similar to many Career Technical Education programs, the students in the welding department are typically older than students on campus taking general education courses. This age factor can lead to an extra sense of motivation and dedication. Career Technical Education students often times have other commitments and responsibilities such as family, full-time employment, or may be temporarily dislocated from their current workplace. These factors can help contribute to the high level of student success within the department as students are driven with external motivating factors to reach their educational and career goals. This motivation will ultimately lead to employment and or career advancement within the welding industry.

Weaknesses

1. **Majors**- Over the last 6 years, the Welding Program had a steady downward trend until a slight increase last year (2015-2016). The high was in 2010-2011, with number of students at 117. The low was in 2014-2015, with number of students at 26:



The trend of count of ID for Academic Year. The marks are labeled by count of ID. The data is filtered on Division, Major and Department2. The Division filter keeps Technology. The Major filter keeps Weld Fabrication & Layout-AA, Weld Fabrication & Layout-CT and Welding. The Department2 filter keeps Welding. The view is filtered on Academic Year, which has multiple members selected.

The data trend illustrated for Declaration of Majors reflects the department's faculty retirement and recruitment history. As three faculty members retired from 2010-2014, it is reasonable that less courses offered would lead to less incoming students declaring a major. The graph indicates a slight rise in 2015, which coincides with the recruitment of a new Faculty member. The Department anticipates that positive growth will continue next year as the 2 newly recruited Faculty member's contributions will have influence.

Ultimately, the Department will increase efforts to encourage students enrolled in the Welding Program to declare a Welding Major.

2. **Weekly Student Contact Hours (WSCH)**- The Welding Program is below state target for WSCH generation of 525, consistently for the last 6 years. The high was in 2013-2014, with hours at 371.36. The low was in 2016-2017, with hours at 342.88. The overall trend in slight variations for the last six years reflects the departments faculty retirement and recruitment history:

Division	2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017	
	WSCH	WSCH / FTEF	WSCH	WSCH / FTEF	WSCH	WSCH / FTEF	WSCH	WSCH / FTEF	WSCH	WSCH / FTEF	WSCH	WSCH / FTEF
Welding Department	3890.00	351.08	4087.00	358.19	4668.00	371.36	3603.00	366.90	3744.00	354.55	4469.00	348.32

The Welding Department acknowledges the fact that this data indicator will remain low in the future. The Program is equipped in the laboratory areas and lecture classrooms to accommodate a maximum of 20 students in a class. In comparison to the campus average larger class size, the smaller number of student in the welding program courses will always limit the WSCH. The faculty understands the benefits of offering one-on-one welding training with each student every day. This personalized attention directly facilitates the student's success, which also serves as a contributing factor to the overall positive reputation of the Program.

3. **Cross Training**- The occasional rise and fall of construction project activity and aerospace contracts leads to a cyclical circumstance in which graduating students that have obtained their welding certification and license occasionally experience difficulty obtaining full-time employment. The Department continually encourages students to further develop their skills and resume by pursuing Certificates and Degree options in welding, as well as other departments such as Machine Tool Technology, Composites, and Engineering Design Technology. Cross training will provide students with a diversified set of skills which will increase their value to job recruiters as well as enhance their opportunities and retention in the job market.
4. **Retention Rates In Welding Lecture Classes**- The Welding Program typically has high success and retention rates amongst the majority of class offerings. The Programs lecture only classes typically have lower success and retention rates than the program's other classes. These three classes include: Weld 49 Welding Shop Math, Weld 59 Blueprint Reading, and Weld 220 Welder Licensing. These three classes require a commitment to multiple hours of study time and homework per week. Due to this factor certain students taking these classes are often overwhelmed by the amount of time needed to succeed in the department's academic type courses. Many students make the decision to continue their education after being distant from the educational atmosphere for many years. A majority of these students lack the study skills necessary to be successful in these difficult and academically challenging classes. Many of the students in the program work full-time and have family commitments. This can also affect their ability to commit the amount of time and dedication required to be successful in these difficult lecture classes. The Department is attempting to improve the student performance in these classes by promoting iFalcon

and referring students to the Student Success Center as well as various other helpful success workshops. Additionally, instructors often utilize their weekly office hours to for study groups for students requiring extra instructional review.

5. **Welding Program Performance Data**- Students can be faced with many external factors that can have a negative impact on the program's performance data. Examples can include: obtaining full-time employment, a change in work hours, divorce, death of a family member, child care issues, financial hardship, home foreclosures, etc. The Department has developed and implemented a system and method of tracking students so it can accurately distinguish between job placements and students that drop out for personal reasons. This will also provide an opportunity and method of analyzing retention numbers in relation to job placements and personal reason drops. This data can also be used to calculate the number of students obtaining employment annually as well as average hourly compensation rates for students leaving and/or completing the program that start entry level jobs within the industry.

Additionally, the department will research and integrate referencing information located in the "Launchboard" data system to aid the overall data collection efforts of measuring student success and job placements.

Opportunities

- 1. Building Relationships With Local Unions**- The Department is currently increasing its efforts in reaching out to local Building and Construction Trade Unions and Apprenticeship Programs to help form and strengthen relations and partnerships. The department's goal is to increase resources to graduating students by providing employment opportunities for well paying jobs with benefits in fields with promising careers and stable job outlooks. Multiple Union Business Agents and Apprenticeship Coordinators are currently scheduled to attend the department's Industry Advisory Meeting this semester.
- 2. Increase Female Participation**- The Department acknowledges the continuously low enrollment of female students entering the program. The Department continually makes an effort to encourage interest amongst female students during campus exhibition events including: The Majors Fair, High School Preview Day, and Manufacturing Day. As previously mentioned, the Department is proud of recruiting the first female welding instructor. While she was hired primarily for her qualifications and industry experience, the Department is grateful to the additional benefits of motivation and inspiration to potential female students. Additionally, this opportunity aligns with the welding industry's overall goal of increasing the number of women in the workforce.

Threats

1. **Instructional Supply Budget**- The Welding Program continues to struggle with limited resources, which is similar to most C.T.E programs on campus. This issue is amplified every year as the department's budget has continued to be decreased while the cost of materials, gasses, electrodes, equipment, and welding consumables continues to increase annually. This major concern of the key component to operating the program is also compounded this year as the department recruited two new faculty members beginning in the Fall 2017 semester. These two welding instructors will regularly help facilitate offering 6-8 more courses, which will include reintroducing the currently suspended Pipe Welding program. This extra instructional load is anticipated to have a great financial burden on the department's resources.

Historically, the Program has relied heavily on industry partner material donations. This has shown a steady decrease over the last several years. Companies are now refusing donations, which is a direct result of the increasing value of recycling these materials. Companies are now less likely to make donations as they sell their scrap metals for profit to recyclers. This economic reaction leaves this usually reliable portion of metal donations to the Program unfulfilled. The Program has adapted to these limitations by redeveloping laboratory projects and recycling each project multiple times. The Program's instructors and students have all worked together to develop new innovative ways of recycling and conserving resources to help offset the budget situation. Faculty members have increased their efforts in working with vendors and suppliers to pursue special educational discounts in an effort to best utilize the department's limited budget.

In conclusion, while the Department makes every effort toward conservation, it is currently financially stretched to a maximum point, which is compounded by the addition of multiple courses, while the supply budget is continually reduced.

2. **Welding and Support Equipment**- The Department regularly faces two issues with welding machines, fabrication machinery, tools, and equipment.
 - a. Technology is helping to develop new equipment, processes, and techniques in which the department does not have a suitable equivalent. In order to provide students with the highest level of educational welding experience possible and facilitate SLO completion, it is extremely important to stay on the leading edge of these advancements through purchasing new equipment.
 - b. Outdated equipment occasionally breaks down costing the department resources to make repairs that would otherwise be used to purchase necessary shop supplies and welding consumables. The inconvenience also costs students and instructors instructional down time.

Equipment technology is always advancing which requires the department to continuously upgrade its current equipment.

- 3. Faculty Understaffed**- Recruitment of Instructors to fill vacancies that are qualified to teach at the Program's high level of expectations remains a concern. The Department is making an effort to recruit new highly qualified adjunct Instructors. One of the newly hired faculty members came from the adjunct pool. One of our current adjuncts is a faculty retiree that came back to teach part-time, his semesters are shortly numbered. An additional adjunct decided not to return to teach this semester. In short, the Department is down two adjuncts with an expected third soon.

Human Resources continually lists an open position on the Colleges Employment Opportunities webpage. Approved applicants will enter into the available instructor pool. The Department conducted interviews earlier this semester with two applicants being approved. One will be included in the Summer of 2018 schedule with an additional beginning in the Fall of 2018.

A continual search for adjuncts will be important to the department's short-term growth as all current faculty are teaching at full overload. Adjuncts are anticipated to be a necessary scheduling resource. Failure to do so may have an impact on the program's ability to offer all classes necessary to award certificates of achievement and/or associate degrees to students in a timely manner.

- 4. Instructional Assistant**- The Program would greatly benefit from recruiting an evening adult hourly to assist the instructors. Instructors spend a considerable amount of time changing gas cylinders, replenishing electrodes, cutting metal, and repairing equipment break downs, which consumes time from teaching in the laboratory. If a evening instructional aide was on staff, they could also handle necessary daily duties such assisting with the setup and breakdown of shop equipment which will allow the instructors maximum time with the class. The students and program would benefit greatly by having one evening adult hourly lab assistant for up to 20 hours per week to support the evening classes.
- 5. Office Support Staff**- As a result of campus wide retirements, budget reductions, staff reductions, and staff being reassigned, the welding department lost it's Full-Time, Range 23, Office Support Staff, Intermediate Typist Clerk position. This position supported eight instructors and was the department's only office/clerical support staff. This position was also vital to the Department's Licensed Welding Test Laboratory operations (Los Angeles Department of Building and Safety). This support position was instrumental in developing and processing the various licenses, certifications, and supporting documentation required for the test laboratory operations. This 40 hour-per-week work load has been absorbed by the faculty members. The Department understands that the College is operating through difficult financial times and would consider it a fair compromise to replace the 40 hour per week Range 23 Support Staff position with a 20 hour per week inexpensive adult hourly. The Department believes this to be a reasonable and justifiable request.

Section 3

Cerritos College Instructional Program Review

Instructional Program Review Goal Establishment Form (Appendix C)

GOALS	ACTION TO BE TAKEN	COMPLETION DATE	PERSON ASSIGNED
Mid-range goals (next 3 years)			
1. (W/1) Increase number of declared majors amongst students with a goal of doubling our current count within the next year.	Train instruction staff to guide students through major selection and change processes.	Fall 2018	Jason Foral to train all staff.
2. (W/2) Increase WSCH target goal to 400.	Encourage instruction staff to keep students engaged to increase their chances to succeed.	Fall 2018	All Staff
3. (T/3) Faculty understaffed.	Continue recruitment search and processes with a goal of hiring additional adjuncts.	Fall 2019	Jason Foral
4. (T/4&5) Support staff.	Research possibility of recruiting Office Support Staff and evening Shop Tech positions.	Fall 2020	Jason Foral
5. (O/1) Build relationships with local Building and Construction Unions.	Research and establish communications to form partnerships.	Fall 2018	Albert Allen Johnny Nunez
Long Term Goals			

GOALS	ACTION TO BE TAKEN	COMPLETION DATE	PERSON ASSIGNED
1. (T/1) Instructional supply budget increase and sustainability.	Develop a plan with the Technology Dean to locate funding sources and alternatives for program materials and enhancements.	2024	Jason Foral
2. (T/2) Submit two grant proposals per year for equipment replacement.	Faculty will participate in grant writing process to fund equipment replacements. Explore other campus resources.	2024	Jason Foral assisted by all staff.
3. (W/3) Cross-Training.	Train instruction staff to promote and encourage students to enroll in other Tech Division courses.	2024	Jason Foral to train all staff.
4. (W/4) Increase retention rates in lecture courses by one student per semester.	Facilitate success by guiding students to beneficial campus resources.	2024	Mark Tait Johnny Nunez
5. (W/5) Welding program performance data.	Analyze "Launchboard" reason code data every semester to track performance and target areas of improvement.	2024	Jason Foral
6. (O/2) Increase the number of female students and staff.	Encourage interest to "non-traditional" groups during campus exhibition events and high-school visitations.	2024	All available staff will participate in campus activities.

