El Camino Community College

PROGRAM REVIEW 2021-2022

Industry and Technology

Welding Technology

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SECTION 1
Program Overview

A) Provide a brief narrative description of the current program, (e.g., the program's mission statement, a description of the students it serves) and any highlights of the program's previous success, future vision, and related needs.

B) Describe the degrees and/or certificates offered by the program.

C) Explain how the program fulfills the college's mission.

The mission of El Camino College is to make a positive difference in people's lives by providing a comprehensive educational programs and services that promote student learning and success in collaboration with our diverse communities.

D) Discuss the status of recommendations from your previous program review.
If more than ten recommendations were presented in the previous program review, expand the enumerated list below as needed.

1. **Recommendation:** Click here to enter Recommendation.
   Status: Click here to enter Completed, Active, On Hold, or Abandoned.
   Notes/Comments:

2. **Recommendation:** Click here to enter Recommendation.
   Status: Click here to enter Completed, Active, On Hold, or Abandoned.
   Notes/Comments:

3. **Recommendation:** Click here to enter Recommendation.
   Status: Click here to enter Completed, Active, On Hold, or Abandoned.
   Notes/Comments:

4. **Recommendation:** Click here to enter Recommendation.
   Status: Click here to enter Completed, Active, On Hold, or Abandoned.
   Notes/Comments:

5. **Recommendation:** Click here to enter Recommendation.
   Status: Click here to enter Completed, Active, On Hold, or Abandoned.
   Notes/Comments:

6. **Recommendation:** Click here to enter Recommendation.
   Status: Click here to enter Completed, Active, On Hold, or Abandoned.
   Notes/Comments:

7. **Recommendation:** Click here to enter Recommendation.

Status: Click here to enter Completed, Active, On Hold, or Abandoned.
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8. **Recommendation:** Click here to enter Recommendation.
   Status: Click here to enter Completed, Active, On Hold, or Abandoned.
   Notes/Comments:

9. **Recommendation:** Click here to enter Recommendation.
   Status: Click here to enter Completed, Active, On Hold, or Abandoned.
   Notes/Comments:

10. **Recommendation:** Click here to enter Recommendation.
    Status: Click here to enter Completed, Active, On Hold, or Abandoned.
    Notes/Comments:

SECTION 2
Program Assessment

Program Contribution to Student Success and Equity

For the program under review, examine the following data for the last four years by:

- **Disaggregating by race/ethnicity, gender, and age where possible.**
- **Discussing internal and external factors contributing to constant, increasing or decreasing trends.**
- **Highlighting equity gaps found among different groups of students.**

- ❖ *If the program under review is a Career Education Program, please examine a) through k) from the list below.*
- ❖ *If students taking courses from the program under review end with a degree or certificate issued by the program, please examine a) through h) from the list below.*
- ❖ *If students taking courses from the program under review do not end with a degree or certificate issued by the program, please examine d) through g) from the list below.*

a) *Degree Completion:* Number/percent of students earning a program degree

b) *Certificate Completion:* Number/percent of students earning a program certificate

c) *Transfer to a four-year institution*: Number/percent of students transferring to a four-year institution

d) *Scheduling of courses:* Percentage of students enrolled in day/evening courses, on campus/online/hybrid courses, days of the week

e) *Fill rate:* Percentage of actual students enrolled in a term in relation to total seats offered

f) *Grade Distribution:* Percentage of students in a course receiving each of the possible grades that can be awarded

g) *Course* Success: Percentage of students enrolled at census who complete the course with a grade of A, B, C, or P

h) *Unit Accumulation:* Number of units accumulated by students working towards a program degree/certificate. Discuss whether students who take units beyond the requirements for their educational goals serve educational purposes or not. Focus on general trends, not on particular courses within the program.

i) *Annual earnings:* Median annual income of alumni who attended the program under review (or the closest related sector)

j) *Living Wage Attainment:* Percent of alumni who attended the program under review (or the closest related sector) and earn living wage

***k) Job in Field of Study: P*ercent of alumni who pursued a career education path with a job related to their field of study.**

Curriculum and Outcomes Assessment

a) Examine the program curriculum using an equity lens by responding to the following questions: To what extent does the curriculum:

- **Prepare students to actively engage in a diverse society?**
- **Include multicultural content?**
- **Respond to diverse students' learning needs?**
- **Encourage instructors and students to investigate their own views, biases and values and discuss multiple perspectives different from their own?**
- **Use critical/equity-oriented pedagogy?**
- **Ensure creating an empowering classroom environment?**
- **Use multiple evaluation techniques sensitive to the diverse ways students can demonstrate understanding?**

b) **Summarize SLO and PLO assessment results over the past four years for key/gateway courses. Gateway courses are determined by your department & division – contact your Dean and/or campus SLO Coordinator.**

c) **Discuss programmatic factors contributing to constant, increasing or decreasing trends in the results for SLO and PLO assessment within the previously examined courses.**

d) **Highlight equity gaps found in SLO and PLO assessment results among different groups of students.**

SECTION 3
Program Vision and Future Planning

Program Vision

A) Describe the vision of the program for the next four years considering the assessment reported in the previous section, student groups that are underrepresented in the program's field, and any relevant changes within the program field/industry. A vision statement describes the desired future state of the program.

Future Planning

A) Based on the assessment reported in the previous section, develop program goals to be completed during the next four years in relation to:

- **Adjusting the curriculum for coherence and alignment with students' workforce needs**
- **Advancing towards a more equitable program to close equity gaps among groups of students**
- **Clarifying students' paths to completion, further education and employment**
- **Helping students explore options and build foundation skills**
- **Helping students stay on the path**
- **Integrating applied learning experiences**

B) What projects will the program complete to achieve the desired goals? Please specify at least two for each goal.

C) When the next program review is due, how will the program determine if the goals have been met? Please specify at least one quantitative target or qualitative accomplishment for each goal.

Program Resources

In the following areas, what are the resources needed by the program to meet the goals for the next four years?

- **List resources in order of priority. You might want to prioritize them within each category and/or develop an overall prioritized list of resources.**

- **Explain how these resources contribute to the College's equity goals.**

a) Staffing

b) Facilities and Equipment

c) Technology/Software

d) Contracts/Services

APPENDIX A
CAREER EDUCATION (CE) SUPPLEMENTAL QUESTIONS

CE programs must conduct a full program review every 4 years. The comprehensive program review includes responses to the CE supplemental questions below. Every two years (once between full program reviews) these supplemental questions must be answered and submitted to Academic Affairs for posting on the College website.

Use labor market data, advisory committee input/feedback, and institutional and program-level data to respond to the following questions:

1. **How strong is the occupational demand for the program?** In your response, describe any changes in demand over the past 5 years and discuss the occupational outlook for next five (5) years. Provide applicable labor market data (e.g., US Bureau of Labor Statistics, Employment Development Department) that address state and local needs.

   According to the Federal Bureau of Labor Statistics, the projected percent change in employment in California for welders, ironworkers, fitters/fabricators, Operating Engineers, Pipefitters/Steamfitters and Maintenance fields from 2020 to 2030 is between 5% - 21% depending on the profession. The average growth rate for all occupations is 7.7 percent, our trade is growing at a much faster than the average for most occupations. Millwrights, a combination of welder and machinist/maintenance technician is projected to grow with employment opportunities during this next decade at a rate of a 10.3 % nationally, but only a 5.3% local job market increase. The increased use of machinery in manufacturing will require millwrights to install and disassemble this equipment, as well as perform some repair work on it. Employment of pipefitters, and steamfitters is projected to grow 5 percent nationally but 12.5% locally. Nationally, Ironworkers show a modest growth rate of 6%, but locally due to factors such as the 2028 Summer Olympics, Structural Iron and Steel Workers jobs are predicted to grow at 13.4%. This same trend holds true for Reinforcing Iron and Rebar Workers with a national growth rate of 5% but a localized growth rate of 11.9%.

   Skilled job opportunities are coming back from China and Mexico since companies have found overseas production to be more costly in mistakes than having the work done in the US. National Skills, USA says that manufacturing in the USA is the 8th most important economy in the world. They are stressing the need for workers capable of leadership skills and possessing qualities that involve critical thinking. Manufacturers Alliance for Productivity and Innovation revealed that there is twenty years of growth in the Aerospace market and US manufacturing assessment states the market will outlast the projects that are booked until the year 2028. Gas Tungsten Arc Welders (GTAW) and people with their AWS D1.1 LA City Certification fall into the category of workers needed to fill this supply. The American Welding Society (AWS) is predicting that US welder shortage will reach a deficit of 400,000 workers by 2024. This means there will be 400,000 welding jobs without welders to fill them. It was determined that El Camino's role in this was to attract young people to the program. The average age of today's welder is 55, and fewer than 20% are under the age of 35. This means that ongoing retirements are going to open union welding positions at an alarming rate over the next eight years right as industry needs the workers in LA County to fulfill the construction requirements for the 2028 Summer Olympics.

The increased adoption of sophisticated manufacturing machinery will require more "technicians" and critical thinkers to keep machines in good working order. Employment of machinery maintenance workers is projected to grow 3.4-8.9 % in California from 2018 to 2028 and as much as 10-21% nationwide. Increased automation, including the use of many computer-controlled machines in factories and manufacturing plants, should raise the demand for machinery maintenance workers to keep industries operating smoothly and supporting growth.

The state has many projects with their metro systems, rebuilding bridges, reconstruction of highways, large contracts for sports arenas and building construction that will require highly skilled welders. The National Infrastructure Bill is also predicted to bring new jobs to California, but specifics of these projects are currently speculation.

California specific demand is as follows:

2018-2028 Occupational Employment Projections
Los Angeles-Long Beach-Glendale Metropolitan Division
(Los Angeles County)

SOC Level[1]	SOC Code[2]	Occupational Title	Base Year Employment Estimate 2018[3][4]	Projected Year Employment Estimate 2028	Numeric Change 2018-2028[3]	Percentage Change 2018-2028	Exits [6]	Transfers [7]	Total Job Openings [8]	Median Hourly Wages [9]	Median Annual Wages [9]	Entry Level Education [10][11]	Work Experience [10][11]	On-the-Job Training [10][11]
4	17-3021	Aerospace Engineering and Operations Technicians	370	390	20	5.4%	130	240	390	$36.96	$76,864	Associate's degree	None	None
2	47-0000	Construction and Extraction Occupations	142,340	158,920	16,580	11.6%	48,090	116,120	180,790	$27.47	$57,144	N/A	N/A	N/A
4	47-2061	Construction Laborers	27,590	30,450	2,860	10.4%	9,700	22,570	35,130	$20.55	$42,751	No formal educational credential	None	Short-term on-the-job training
3	47-2000	Construction Trades Workers	117,260	131,290	14,030	12.0%	38,950	94,780	147,760	$0.00	$0	N/A	N/A	N/A
4	49-9041	Industrial Machinery Mechanics	5,970	6,170	200	3.4%	1,910	3,660	5,770	$27.37	$56,916	High school diploma or equivalent	None	Long-term on-the-job training
4	49-9071	Maintenance and Repair Workers, General	32,830	35,640	2,810	8.6%	12,000	21,180	35,990	$20.54	$42,728	High school diploma or equivalent	None	Moderate-term on-the-job training
4	49-9043	Maintenance Workers, Machinery	1,350	1,430	80	5.9%	520	740	1,340	$27.01	$56,168	High school diploma or equivalent	None	Long-term on-the-job training
4	47-2073	Operating Engineers and Other Construction Equipment Operators	4,050	4,300	250	6.2%	1,420	3,400	5,070	$42.48	$88,363	High school diploma or equivalent	None	Moderate-term on-the-job training
4	47-2152	Plumbers, Pipefitters, and Steamfitters	10,280	11,570	1,290	12.5%	3,190	8,920	13,400	$22.79	$47,406	High school diploma or equivalent	None	Apprenticeship
4	47-2171	Reinforcing Iron and Rebar Workers	420	470	50	11.9%	100	420	570	$15.01	$31,210	High school diploma or equivalent	None	Apprenticeship
4	47-2211	Sheet Metal Workers	2,900	3,110	210	7.2%	890	2,370	3,470	$22.70	$47,226	High school diploma or equivalent	None	Apprenticeship
4	47-2221	Structural Iron and Steel Workers	1,870	2,120	250	13.4%	560	1,800	2,610	$27.84	$57,911	High school diploma or equivalent	None	Apprenticeship

National demand is as follows:

U.S. BUREAU OF LABOR STATISTICS

Employment projections data for ironworkers, 2020-30

Occupational Title	SOC Code	Employment, 2020	Projected Employment, 2030	Change, 2020-30		Employment by Industry
				Percent	Numeric	
Ironworkers	—	93,100	98,500	6	5,400	—
Reinforcing iron and rebar workers	47-2171	22,100	23,200	5	1,200	Get data
Structural iron and steel workers	47-2221	71,000	75,300	6	4,200	Get data

SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program

Employment projections data for industrial machinery mechanics, machinery maintenance workers, and millwrights, 2020-30

Occupational Title	SOC Code	Employment, 2020	Projected Employment, 2030	Change, 2020-30		Employment by Industry
				Percent	Numeric	
Industrial machinery mechanics, machinery maintenance workers, and millwrights	—	501,500	596,700	19	95,200	—
Industrial machinery mechanics	49-9041	391,800	475,300	21	83,600	Get data
Maintenance workers, machinery	49-9043	65,600	72,600	11	7,000	Get data
Millwrights	49-9044	44,200	48,700	10	4,600	Get data

SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program

Employment projections data for construction equipment operators, 2020-30

Occupational Title	SOC Code	Employment, 2020	Projected Employment, 2030	Change, 2020-30		Employment by Industry
				Percent	Numeric	
Construction equipment operators	47-2070	457,200	482,100	5	24,900	Get data
Paving, surfacing, and tamping equipment operators	47-2071	44,800	47,400	6	2,500	Get data
Pile driver operators	47-2072	3,900	4,100	5	200	Get data
Operating engineers and other construction equipment operators	47-2073	408,500	430,700	5	22,200	Get data

SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program

Employment projections data for plumbers, pipefitters, and steamfitters, 2020-30

Occupational Title	SOC Code	Employment, 2020	Projected Employment, 2030	Change, 2020-30		Employment by Industry
				Percent	Numeric	
Plumbers, pipefitters, and steamfitters	47-2152	469,900	493,200	5	23,400	Get data

SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program

Employment projections data for welders, cutters, solderers, and brazers, 2020-30

Occupational Title	SOC Code	Employment, 2020	Projected Employment, 2030	Change, 2020-30		Employment by Industry
				Percent	Numeric	
Welders, cutters, solderers, and brazers	51-4121	418,200	452,400	8	34,100	Get data

SOURCE: U.S. Bureau of Labor Statistics, Employment Projections program

2. **How does the program address needs that are not met by similar programs in the region?** In your response, identify any distinctive components of the program (e.g., curriculum, facilities, resources) and/or describe any unique contributions the program or its students/graduates make to the community served.

   We are dissecting our educational approach trying to introduce all aspects of our trade, offering students a strong foundation of welding theory education, nomenclature, machinery exposure, fit-up, inspection and print reading. The El Camino Weld Program is focused on training the students to be Weld Technicians that can be leaders in the field. They must be comfortable to operate equipment commonly used in metal fabrication with the ability to assess their job assignments and apply critical thinking to complete their task. Combination welders are in high demand - a difficult task since each process requires a different style, rhythm and technique. Fabrication, print reading, lay out and fit-up skills that require a deeper understanding of math are all focus points so that students can excel as leaders in our industry.

   Each course in the Welding program will build on the previous course to develop each student into highly valued resources for welding industry employers. Students advancing through the program will develop an in-depth understanding of the science behind Welding. This understanding will help guide students to problem resolution and enable good decision-making when evaluating problems in the field. Each class on the way to completion will look back at the history behind Welding, evaluating industry trends and future needs. Fabrication is a key component to success in the weld industry. Every class along the way to program completion will seek to have students come up with creative solutions to complex problems.

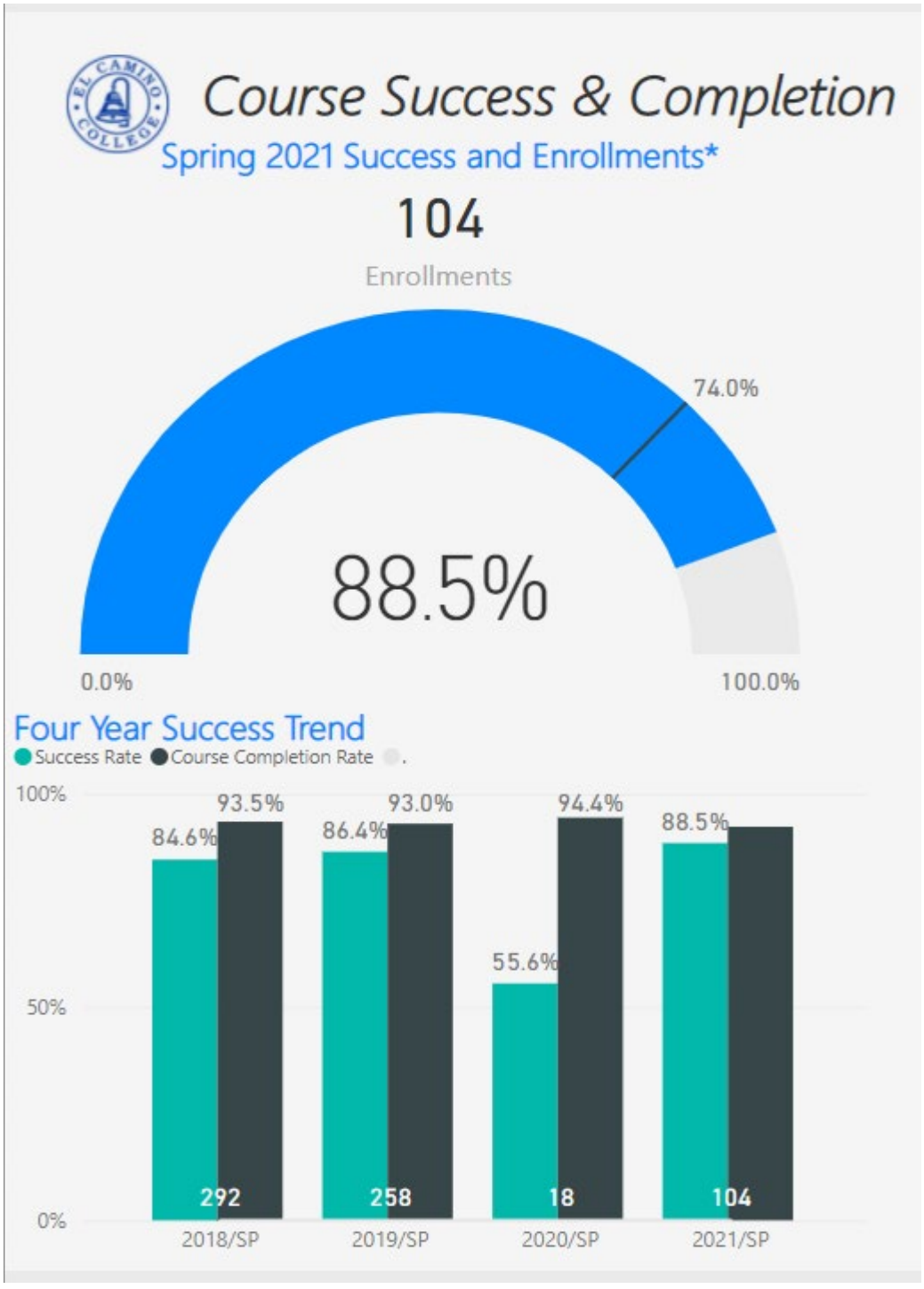
3. **What are the completion, success, and employment rates for students in the program?** In your response, identify the standards set by the program and discuss any factors that may impact completion, success, and employment rates among students in the program. Describe the status of any action plans for maintaining/improving rates relative to such benchmarks.

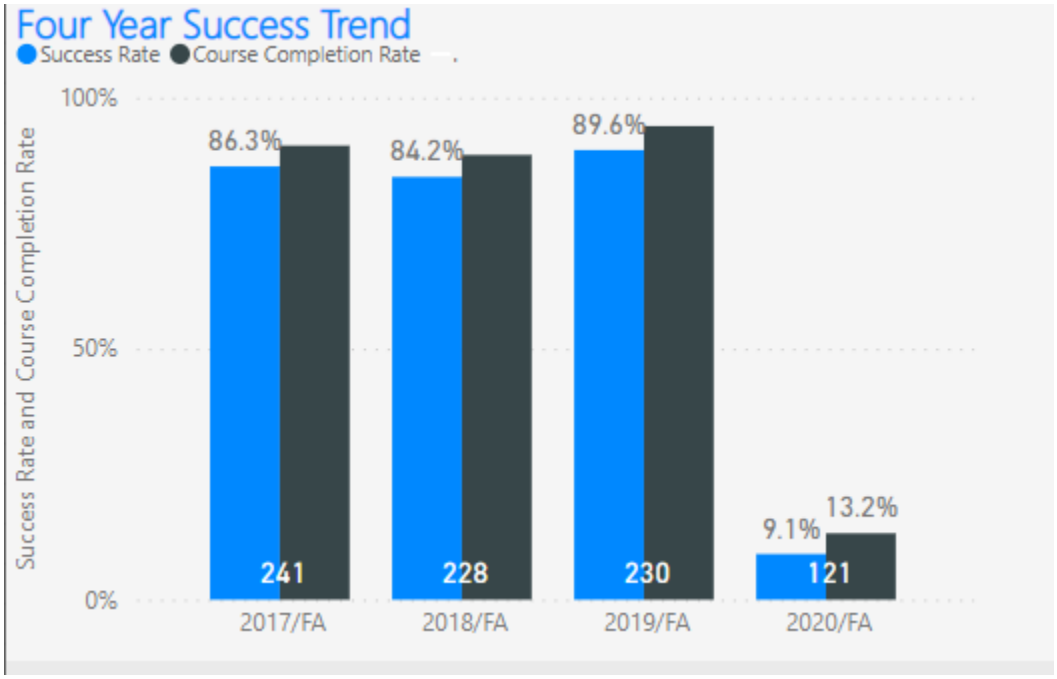
   We typically have approximately 200-250 students enrolled at ECC in a Spring or Fall semester. Covid-19 has adversely affected our enrollment and we are currently looking at options to rebuild the student bas from the ground up and a return to previous enrollment levels. We are overwhelmingly supported by our Advisory Committee in the belief that math and the ability to communicate are extremely important to advance in a career as a Weld Technician. To achieve this goal, they need trained welders. El Camino College offers a program that applies principles of welding to the practical techniques needed to build their skills. Our program is aware of the need for weld technicians, and we are updating our curriculum to keep abreast of the new technology and training methods.

   The course completion and success rates for the welding department are less than stellar due to a large amount of class cancellations during the Spring and Fall 2020 semesters. These cancellations were a direct result of the Covid-19 Pandemic and the fact that many of our classes cannot be taught in an online format. I will include the data sets below to highlight the difference between normal results and results that include the Covid-19 data set. Typically, the Welding department supports success rates between 80-85% and completion rates between 85-90%. The data provided by Institutional research seems to be incorrect and shows a completion

rate for Spring 2020 which is not in alignment with how many of courses were cancelled due to Covid-19.

Our employment rate for students that complete the program or earn a welding license is at 87%. If students would be willing to move out of state it would increase by 11%. Since the period of Academic Program Review in 2014, Certificate completion has increased by 1200% and Degree completion has increased by 400%. These numbers have plummeted as the effects of the Covid-19 pandemic compounded.





4. **List any licensure/certification exam(s) required for entry into the workforce in the field of study and report the most recent pass rate(s) among program graduates.** In your response, identify any applicable performance benchmarks set by regulatory agencies and describe the status of any action plans for maintaining/improving pass rates relative to such benchmarks.

   We offer the prep course for the written part of the LA City D1.1 structural steel certification exam. We are experiencing a 75-100% pass each semester that we offer this course, which encourages our students to finish their practical qualification either the same semester or the following. The department is an official Los Angeles Department of Building and Safety (LADBS) test site. The Welding department can administer the practical 3G/4G qualification tests for both shielded metal arc welding and flux cored arc welding to complete the requirements of the LADBS D1.1 certification.

   Covid-19 has wreaked havoc on the students' opportunities for skill building and testing for licensing. The Welding department is in the process of creating a data set that keeps track of every student that passes a qualification test and whether that qualification results in a LADBS welding license. This data tool should be up to date and available for the next period of academic program review. Now that the Laboratory is a LADBS accredited testing facility, the number of licensure completions will increase as both full-time faculty members are AWS Certified Welding Inspectors capable of issuing in house qualifications.

5. **Are the students satisfied with their preparation for employment? Are the employers in the field satisfied with the level of preparation of program graduates?** Use data from student surveys, employer surveys, and other sources of employment feedback to justify your response.

Students routinely report that they are extremely satisfied with the level of employment preparation they receive in the El Camino College Welding Technology program. The student survey conducted for the Academic Program Review showed a high level of student satisfaction with all aspects of the program. Strong Workforce has repeatedly awarded the Welding program with a Silver Star and noted that 100% of students employed are working in the welding industry.

Union response has indicated that our students are showing a high level of job readiness for the structural steel, millwright, and pipefitting industries. While aerospace employers like Honeywell, Ace Clearwater, Robinson Helicopter and SpaceX routinely hire graduates from the El Camino Welding program. Smaller fabrication shops report that they are impressed with our students' ability to utilize multiple welding processes after completing the Program.

Overall, both the industry and student response has been overwhelmingly positive. This reinforces the direction and the vision maintained by the El Camino College Welding Technology program to train versatile welding technicians

Appendix D: Student Survey- Program Review 2022

Student Support	Strongly Agree	Agree	Neither agree nor	Disagree	Strongly Disagree		Percent Conformance SA	A	N	D	SD
Instructors in this program have helped me achieve my academic goals.	15	8	1			24	62.50%	33.33%	4.17%	0.00%	0.00%
Instructors in this program have helped me stay on track.	12	9		3		24	50.00%	37.50%	0.00%	12.50%	0.00%
Instructors in this program provide me with opportunities to actively participate in my classes.	18	6				24	75.00%	25.00%	0.00%	0.00%	0.00%
I have felt a sense of community within this program.	16	6	2			24	66.67%	25.00%	8.33%	0.00%	0.00%
Student contributions have been valued by instructors in this program.	13	8	3			24	54.17%	33.33%	12.50%	0.00%	0.00%
Curriculum											
There is an appropriate range of courses offered in this program.	18	2	3	1		24	75.00%	8.33%	12.50%	4.17%	0.00%
Courses were scheduled on days and times that were covenient to me.	15	5	3	1		24	62.50%	20.83%	12.50%	4.17%	0.00%
I've been able to register for the classes I needed within this program.	12	10	2			24	50.00%	41.67%	8.33%	0.00%	0.00%
The courses in this program have helped me meet my academic goals.	11	10	3			24	45.83%	41.67%	12.50%	0.00%	0.00%
There is a variety of extracurricular activities related to this program on campus.	3	4	11	5	1	24	12.50%	16.67%	45.83%	20.83%	4.17%
The library has the resources to help me succeed in this program.	1	2	12	7	2	24	4.17%	8.33%	50.00%	29.17%	8.33%
Facilities, Equipment, & Technology											
The buildings and classrooms used by this program are satisfactory.	22	2				24	91.67%	8.33%	0.00%	0.00%	0.00%
I am satisfied with the equipment (projectors, machinery, models, etc.) used in	23	1				24	95.83%	4.17%	0.00%	0.00%	0.00%
I am satisfied with the computers and software used in this program.	7	6	11			24	29.17%	25.00%	45.83%	0.00%	0.00%
Program Objectives											
I am aware of the course outcomes—what I should be able to to learn and what skills I should possess after completing courses in the program.	12	11	1			24	50.00%	45.83%	4.17%	0.00%	0.00%

Total Persons Surveyed	Percent Average (All Q)				
24	55.00%	25.00%	14.44%	4.72%	0.83%

6. **Is the advisory committee satisfied with the level of preparation of program graduates? How has advisory committee input and feedback been used in the past two years to ensure employer needs are met by the program?** Describe the status and impact of any advisory committee recommendations.

A review of the program has been presented to the advisory committee. The advisory committee members discussed the changes to the program and the importance of implementing emerging technologies into the program. The advisory board is used to exchange and gather information, many of the questions posed result in innovation and respond to employment needs. We are looking to build our membership to reflect all the welding techniques used in the field. We use members of the board for additional information of equipment and state of the art training. We are looking to increase our coverage of companies participating on our board.

The members of the Advisory Committee were all very understanding of the complications and restrictions involved with the Covid-19 pandemic. This has caused a lack of implementation of suggestions from the Committee. By and large, the Advisory Committee is very impressed with the quality of welders that the El Camino College Welding department produces. Past implementations include modernization of equipment, creation of a program for flux cored arc welding, and LADBS testing facility accreditation. All of these were successfully implemented between 2018-2020. As conditions normalize the Welding department plans to move forward with the implementation of more recent Advisory Committee recommendations.

The committee continues to recommend that students need to develop basic skills to use common hand tools and semi-automatic equipment used in the industry. The committee agreed that many of those completing Weld programs do not have the basic hand tools skills necessary to work effectively in the industry. We continue to survey our Advisory Committee members throughout the year to track industry trends and discover emerging needs in their specific fields. One of the topics from the most recent meetings highlighted the inability of local industry to find qualified welders to fill open positions. The U.S. skills gap is responsible for this shortage and the problem is only going to get worse. This input helps the Program to clarify its direction and vision and continue to train highly skilled welding technicians capable of supporting the needs of industry

California Education Code 78016 requires that the review process for CE programs includes the review and comments of a program's advisory committee. **Provide the following information:**

a. Advisory committee membership list and credentials.
b. Meeting minutes or other documentation to demonstrate that the CE program review process has met the above Education Code requirement.

Welding Technology Advisory Committee Minutes – Spring 2021

Members Contacted Remotely Throughout Spring 2021-Renee Newell (Faculty), Dylan Meek (Faculty), Daniel Rodriguez (Division Technician), Nick Colin (Faculty and Aerospace welder), Sydney Grcevic (Faculty), Kiera Griffin (Welding Instructor), Angel Ocampo (Classified Representative), Bill Barnard (General Contractor, Barnard and Barnard Construction), Don Nicholson (Field Manager, Sempra Utilities), Ray Lodwig (Millwrights Local 1607), Albert Sandoval (Ironworkers Local 433), Willie Graham Jr. (Local 433), Bruce Capucetti (Former LADBS Materials Control), Steve Rowden (Chevron, Welding Training Supervisor), Kelsey Garret (Technical Sales Engineeer, Lincoln Electric)

1) Enrollment
   a) With the welding program open but reduced to 50% population caps for classes, enrollment is suffering. Another class cancellation in Fall of 2020 did not help the situation and remote learning is driving many of our tactile learners away even when there are spots available in person.
      i) The assumption is that we will suffer low enrollment in the future in upper-level classes. There is a need to cast a wide net at the fundamental level to encourage a healthy population of new welding students at El Camino College.
      ii) All members agreed that marketing and industry outreach would be essential to repopulate the program.
2) Curriculum – needs, courses, certificates, changes?
   a) List of laboratory hours on certificates.
      i) This will allow employers to more easily understand how much welding is being done to achieve each certificate.
   b) Creation of a new flux cored class to provide further training for students that are unable to achieve certification during Weld 20A.
   c) Academic skills mentioned by all committee members include improved mathematical aptitude, writing, critical thinking, and the ability to read technical journals.
3) Equipment Needs
   a) Modernization of equipment and replacement of outdated equipment
      i) Torchmate Plasma Table
      ii) Vertical Bandsaw

iii) Horizontal Bandsaw
iv) Pedestal Grinders

4) Industry Needs
   a) Construction trades in the Los Angeles area are growing faster than the national average. Even with the Covid-19 pandemic, construction continues, and new jobs begin.
      i) This is particularly true amongst the fields of structural iron workers, millwrights, and pipefitters and steamfitters.
      ii) Even with the ongoing pandemic there has been a rise in new building construction in the Los Angeles area that is predicted to continue through 2028
   b) The Summer Olympic Games being held in Los Angeles in 2028 will continue to drive new construction as facilities and housing are prepared for the games over the next 8 years.
   c) Employers need more welders. According to the American Welding Society (A.W.S.), the U.S. welder shortage will reach a deficit of 400,000 workers by 2024.
      i) Many factors contribute to this crisis including,
         (1) Attrition, whether it is retirements, people leaving the industry, or people moving and advancing.
         (2) Lack of younger people entering industry. The average age of today's welders is 55, and fewer than 20% are under the age of 35.
         (3) This need is not widely recognized among graduating secondary school students, their parents, and others such as career counselors who influence career and educational choices.

5) Other
   a) Continuing to renew the Los Angeles Department Building and Safety accredited testing facility status and to make this available to local industry to strengthen industry connections.
   b) Achieving AWS accredited testing facility status was discussed but the cost is daunting.

All Committee members realize the struggle with enrollment that we are experiencing in the Welding department at El Camino College. The consensus amongst all members is to cast a wide net of beginning courses when we are allowed to resume a normal class load. Though the upper-level courses may suffer, and some graduations may be delayed, it is imperative for the program to rebuild its student population from the ground up. Working with the El Camino marketing team will be instrumental in attracting new students to the welding program. Other suggestions involved sending the instructors in person to speak at local High Schools in the service area to increase awareness of the program. It was unknown if this is an option, and it was decided unanimously that once the pandemic dies down, we will pursue this line of marketing with the administration.

The members of the Committee were very understanding that many goals of the previous years meeting have been left unresolved and once again expressed their interest in seeing actual numbers of laboratory hours recorded on certificates of achievement and accomplishment. They once again stressed that this would be a valuable tool for potential employers in gauging the experience levels of new hires. This would increase the employability of graduates and increase

long term student success. The El Camino Welding Faculty and the members of the committee were unanimous in their decision to pursue this outcome.

It has been noted by the Advisory Committee members that although we have an entire series of courses for SMAW, there is only one class on the schedule that is devoted to FCAW. The committee members involved in structural ironworking all inquired as to qualification rates for students completing the FCAW course. It was determined that the number was too low to supply current industry needs and that another FCAW course should be created to facilitate further skill building leading to qualification in the FCAW-S process.

The welding laboratory is still in need of some improvement and modernization of its automation and machine tool assets. The current plasma table is a very early model and does not support the telemetry of new models. The bandsaws both see intense use and the operating hour buildup on both machines far outweighs their actual years of service. The pedestal grinders are still from the old building and do not have adequate safety features or dust collection. The advisory committee agreed unanimously that modernization and replacement of these machines was important for program success.

When employment opportunities were discussed with our industry partners the results were staggering. Across the board all industries were looking for more welders. Every industry that employs people in the skilled trades are hurting for qualified employees and this is particularly true for welding. Many of the industry partners noted that they had even increased starting pay rates and were still not able to attract new employees. Local industry is therefore relying on El Camino college to supply the next generation of welding technicians to keep their staff rosters full and their doors open for business. As discussed in the minutes, the American Welding Society (AWS) is predicting that US welder shortage will reach a deficit of 400,000 workers by 2024. These means there will be 400,000 welding jobs without welders to fill them. It was determined that El Camino's role in this was to attract young people to the program. The average age of today's welder is 55, and fewer than 20% are under the age of 35. This means that ongoing retirements are going to open union welding positions at an alarming rate over the next eight years right as Industry needs the workers in LA County to fulfill the construction requirements for the 2028 Summer Olympics. The committee unanimously agreed that the El Camino Welding department and the College needs to redouble efforts to secure new students to fill burgeoning industry staffing needs. One way to increase this number of potential employees is an outreach program focused on recruiting female students to the welding industry. Women make up approximately 50% of the population of the United States but only account for 8-12% of the population of employed welders.

The advisory committee applauded our efforts to secure and maintain the LADBS accredited testing facility status. All members spoken to throughout the year agreed that it is important for the success of the local structural ironworking and longshoreman mechanic industries for us to maintain this each year. Gaining AWS accredited testing facility was talked about as some new contracts under pressure from the AWS are being created that require all welders to be AWS certified. Currently, the cost and effort to maintain the AWS accreditation is unrealistic for the school and the committee agreed to shelve the idea until the need for AWS welding certification proves to be a barrier for employment.

First Name	Last Name	Job Title	Company
Bruce	Falk	Sales	Action Metal Sales
Kelsey	Garrett	Technical Sales Engineer	Lincoln Electric
Robert	Frutos	Sales	Matheson Gas
Saul	Cruz	Sales	Matheson Gas
Doug	Banks	Welder	Banks Welding
Rick	Brantley	Welder	American Welding
James	Butterfield		
Bruce	Capucetti	Senior Inspector	LADBS Materials Control
Nick	Colin	Instructor	El Camino College
Willie	Graham	Welder	Portable Welding Services
Tim	Griffith		LADBS Materials Control
Frank	Hargrove		Murray Company Corporate Headquarters
Dylan	Meek	Instructor	El Camino College
Renee	Newell	Instructor	El Camino College
Daniel	Rodriguez	Welding Technician	El Camino College
Juan	Tovar	HR Manager	PCC/Klune Industries
Bill	Barnard	General Contrator	Barnard and Barnard Construction
Rayanthony	Lodwig	Millwright	Millwrights Local 1607
Carlos	Cervantes	Ironworker	Ironworkers Local 433/CWI
Joe	Pizano	Complex Project	LAUSD
Erik	Langarica	Instructor	Harbor Occupational Center
John	Carpenter	Senior Building Inspector	LADBS Materials Control Section
Steve	Rowden	Welding Trainer	Chevron
Albert	Sandoval	Ironworker	Ironworkers Local 433
Kiera	Griffin	Welding Instructor	U.E.I.