



Aerospace Welding (Welding Technology TOP 0956.50)

October 2022

Prepared by the South Central Coast Center of Excellence for
Labor Market Research

Program Recommendation

This report was compiled by the South Central Coast¹ Center of Excellence to provide regional labor market data for the program recommendation – Welding Technology. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Key Findings

- In the South Central Coast region, the **number of jobs related to Welding Technology are expected to increase** for Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders, but **remain steady** for Welders, Cutters, Solderers, and Brazers.
- Welding Technology is anticipated to experience a **high risk of automation** for Welders, Cutters, Solderers, and Brazers, but a **medium risk of automation** for Welding, Soldering, Brazing Machine Setters, Operators, and Tenders.
- In 2021 there were 89 regional completions in programs related to Welding Technology and 241 openings, indicating an **undersupply**.
- Typical entry-level education is a **high school diploma or equivalent** for both related occupations.
- Completers of Welding Technology programs from the 2018-2019 academic year in the South Central Coast region had a **median annual wage upon completion of \$35,496**.
- 50% of students are **employed within a year** after completing a program.
- 49% of students **attained a living wage** within a year of completion.
- Completers experienced an average of +39% **change in earnings after exiting**.
- 82% of students were **part-time**, 17% **skill builders**, 40% **first-generation**, and 73% **economically disadvantaged**.

¹ The South Central Coast Region consists of San Luis Obispo County, Santa Barbara County, Ventura County, and the following cities from North Los Angeles County: Canyon Country, Castaic, Lake Hughes, Lancaster, Littlerock, Llano, Newhall, Palmdale, Pearblossom, Santa Clarita, Stevenson Ranch, and Valencia.

Occupation Codes and Descriptions

There are two occupations in the standard occupational classification (SOC) system that were identified as related to Welding Technology for this analysis. The occupation titles and descriptions, as well as reported job titles, are included in Exhibit 1.

Exhibit 1 – Occupation, Description, and Sample Job Titles

SOC Code	Title	Description	Sample of Reported Job Titles
51-4121	Welders, Cutters, Solderers, and Brazers	Use hand-welding, flame-cutting, hand-soldering, or brazing equipment to weld or join metal components or to fill holes, indentations, or seams of fabricated metal products.	Assembly Line Brazer, Brazer, Fabrication Welder, Maintenance Welder, MIG Welder (Metal Inert Gas Welder), Solderer, TIG Welder (Tungsten Inert Gas Welder), Welder, Welder Fitter, Wirer
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Set up, operate, or tend welding, soldering, or brazing machines or robots that weld, braze, solder, or heat treat metal products, components, or assemblies. Includes workers who operate laser cutters or laser-beam machines.	Braze Operator, Finishing Technician, Machine Operator, MIG Welder, Robot Operator, Spot Welder

Source: O*NET Online

Current and Future Employment

In the South Central Coast region, the number of jobs related to Welding Technology are expected to increase for Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders, but remain steady for Welders, Cutters, Solderers, and Brazers.

Exhibit 2 – Five-Year Projections for Welding Technology in the South Central Coast Region

SOC	Occupation	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change
51-4121	Welders, Cutters, Solderers, and Brazers	1,787	1,896	109	6%
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	125	123	-2	-2%

Source: Economic Modeling Specialists International (EMSI)

Earnings

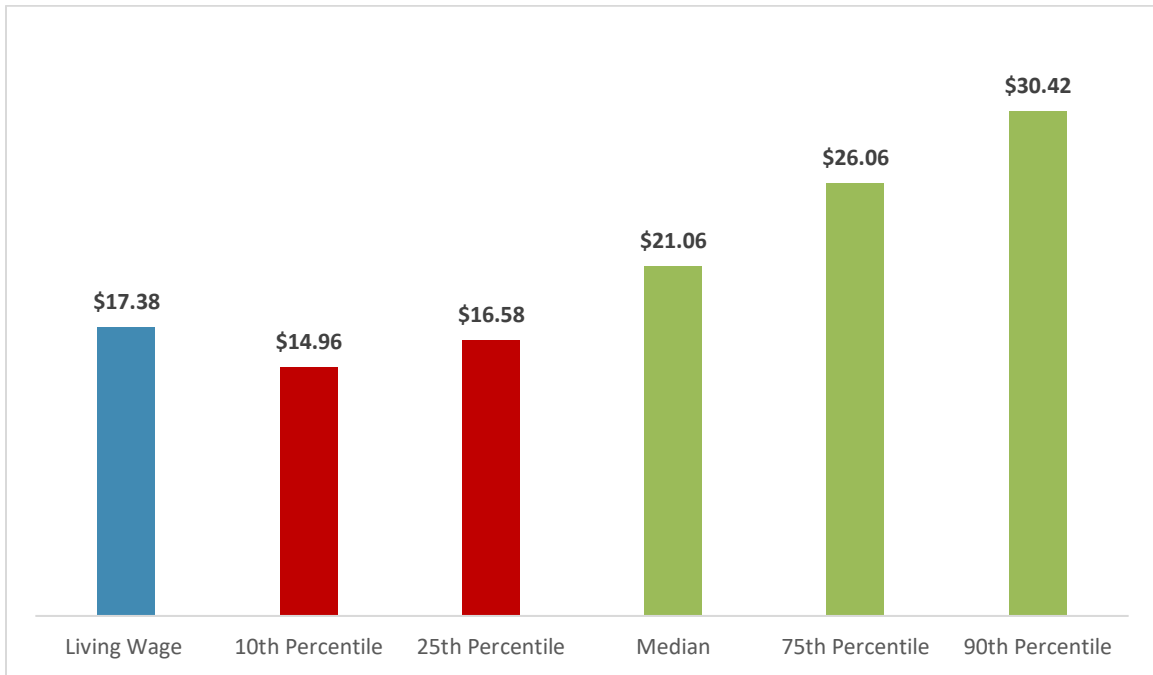
Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry-level hourly earnings are represented by the 25th percentile of wages, median hourly earnings are represented by the 50th percentile of wages, and experienced hourly earnings are represented by the 75th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for Welding Technology in the South Central Coast Region

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
51-4121	Welders, Cutters, Solderers, and Brazers	\$18.16	\$22.91	\$28.31
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	\$14.99	\$19.20	\$23.81

Source: Economic Modeling Specialists International (EMSI)

Exhibit 3b – Earnings for Welding Technology in the South Central Coast Region



Source: Family Needs Calculator (Living wage is based on Single Adult households with no children); Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is looking for welding workers, and what they are looking for in potential candidates. To identify job postings related to Welding Technology the following standard occupational classifications were used:

51-4121	Welders, Cutters, Solderers, and Brazers
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders

Top Occupations

In 2021, there were 193 employer postings for the occupations related to Welding Technology.

Exhibit 4 – Top Occupations by Job Postings

SOC Code	Occupation	Job Postings, Full Year 2021
51-4121	Welders, Cutters, Solderers, and Brazers	184
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	9

Source: Labor Insight/Jobs (Burning Glass)

Exhibit 4b – Top Occupations and Risk of Automation

SOC Code	Occupation	Risk of Automation
51-4121	Welders, Cutters, Solderers, and Brazers	High
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	Medium

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top job titles for employers posting ads for jobs related to Welding Technology are listed in Exhibit 5. Welder is mentioned as the job title in 20% of all relevant job postings (38).

Exhibit 5 – Job Titles

Title	Job Postings, Full Year 2021
Welder	38
Welder/Fabricator	13
Mig Welder	9
Production Welder	6
Fabricator/Welder	5

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the Welding Technology field. The top employer posting job ads was Express Oxnard. The top worksite cities for these occupations were Ventura, Simi Valley, Santa Clarita, Santa Maria, and Oxnard.

Exhibit 6 – Top Employers (n=66)

Employer	Job Postings, Full Year 2021
Express Oxnard	8
Trimas Corporation	6
Wilmanco	3
SpaceX	3
Hot Section Technologies	3

Source: Labor Insight/Jobs (Burning Glass)

Skills

The tables in Exhibit 7 list employers' most commonly requested skills in job postings related to Welding Technology. Welding is the most sought-after specialized skill for employers, followed by Mig and Tig Welder, and Repair. Organizational Skills, Communication Skills, and Physical Abilities were the most requested baseline skills. S-Plus, Microsoft Word, and Microsoft Office were the most commonly requested software and programming skills.

Exhibit 7 – Specialized Skills (n= 881)

Skills	Job Postings, Full Year 2021
Welding	167
Mig and Tig Welder	66
Repair	36
Hand Tools	24
Welding Equipment	22
Calipers	21
Power Tools	20
Lifting Ability	19
Forklift Operation	18
Grinders	17
Shielded Metal Arc Welding (SMAW)	15
Micrometers	15
Gas-metal Arc Welding (GMAW)	14
Cleaning	14
Lathes	13

Source: Labor Insight/Jobs (Burning Glass)

Exhibit 7b – Baseline Skills (n= 184)

Skills	Job Postings, Full Year 2021
Organizational Skills	23
Communication Skills	19
Physical Abilities	17
Work Area Maintenance	14
English	14
Detail-Oriented	13
Teamwork/Collaboration	11
Research	6
Time Management	5
Problem Solving	5

Source: Labor Insight/Jobs (Burning Glass)

Exhibit 7c – Software and Programming Skills (n= 7)

Skills	Job Postings, Full Year 2021
S-Plus	4
Microsoft Word	1
Microsoft Office	1
Microsoft Excel	1

Source: Labor Insight/Jobs (Burning Glass)

The table below lists the skill clusters most in demand for Welding Technology occupations.

Exhibit 7d – Skill Clusters in Demand (n=580)

Skill Cluster	Job Postings, Full Year 2021
Manufacturing and Production: Welding	167
Manufacturing and Production: Machine Tools	55
Maintenance, Repair, and Installation: Hand Tools	43
Maintenance, Repair, and Installation: Power Tools	25
Supply Chain and Logistics: Material Handling	21
Health Care: Physical Abilities	20
Manufacturing and Production: Brazing and Soldering	17
Customer and Client Service Support: Basic Customer Service	14
Manufacturing and Production: Machinery	12
Engineering: Drafting and Engineering Design	12

Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Exhibit 8 shows the industries with the most Welding Technology postings in the South Central Coast region. Note: 23% of records have been excluded because they do not include an industry. As a result, the chart below may not be representative of the full sample.

Exhibit 8 – Industries Employing the Most in the Welding Technology Field, 2021

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Construction	79	53%
Manufacturing	41	28%
Professional, Scientific, and Technical Services	11	7%
Retail Trade	8	5%
Administrative and Support and Waste Management and Remediation Services	3	2.0%

Certifications

Exhibit 9 lists the most in-demand certifications in the Welding Technology field. The top requested certification in job postings was Driver's License.

Exhibit 9 – Certifications (n= 46)

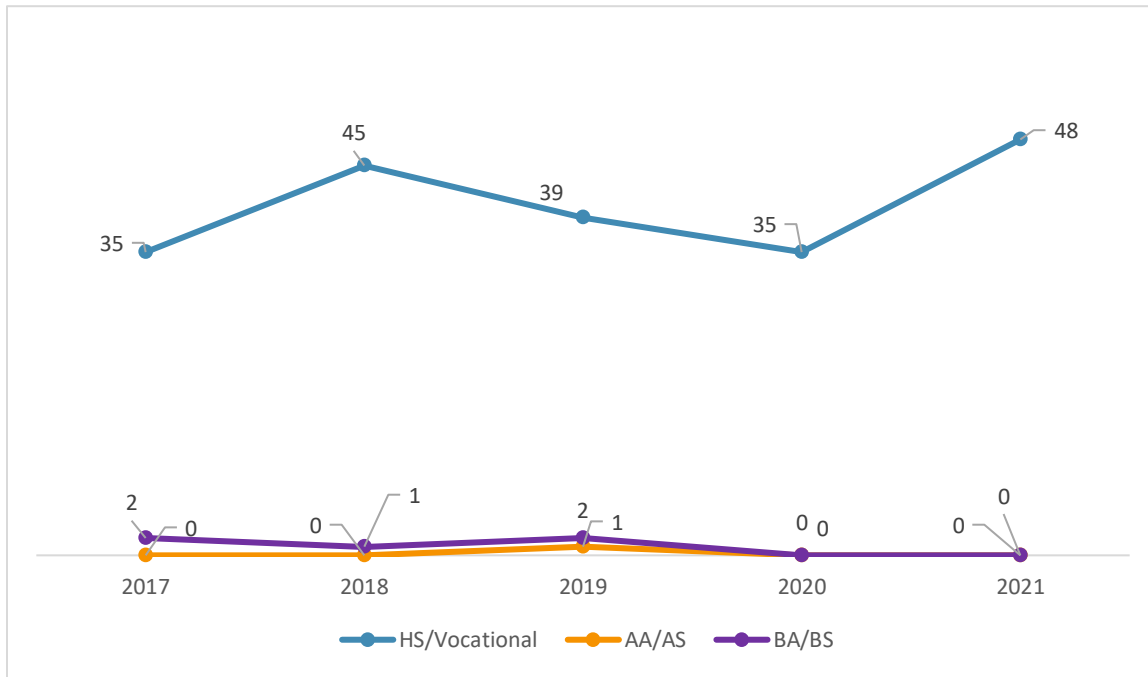
Certifications	Job Postings, Full Year 2021
Driver's License	12
Welding Certification	11
OSHA Forklift Certification	5
American Society of Mechanical Engineers (ASME) Certified	5
Security Clearance	4

Source: Labor Insight/Jobs (Burning Glass)

Job Postings - Minimum Educational Attainment Over Time

Exhibit 10 displays the change in job advertisements over the last five years for Welding Technology, according to the minimum advertised education. In 2021, there were 48 total job ads posted with a minimum advertised education, with all 48 of them requiring a high school diploma or vocational training.

Exhibit 10 – Educational Demand, Minimum Advertised



Source: Labor Insight / Jobs (Burning Glass)

Job Postings – Proportion of Job Postings by Minimum Educational Attainment Required

To gauge employer preference for candidates with particular education levels, the proportion of job postings by minimum advertised education appears in Exhibit 11. Employers posting job ads for Welding Technology have overwhelmingly sought candidates with a high school diploma or vocational training.

Exhibit 11 – Occupational Demand by Education, Minimum Advertised

Minimum Education Requirement	2017	2018	2019	2020	2021
HS Diploma / Vocational Training	95%	98%	93%	100%	100%
Associate Degree	0%	0%	2%	0%	0%
Bachelor's Degree	5%	2%	5%	0%	0%
Graduate Degree	0%	0%	0%	0%	0%

Source: Labor Insight/Jobs (Burning Glass)

Education and Training

Exhibit 12 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training needed to attain competency in the occupation.

Exhibit 12 – Education and Training Requirements

SOC	Occupation	Typical entry-level education	Typical on-the-job training
51-4121	Welders, Cutters, Solderers, and Brazers	High school diploma or equivalent	Moderate-term on-the-job training
51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	High school diploma or equivalent	Moderate-term on-the-job training

Source: Bureau of Labor Statistics Employment Projections (Educational Attainment)

Regional Completions and Openings

There were 89 regional completions (2021) and 241 regional openings (2021) in the South Central Coast region for programs related to the occupations in this report.

Exhibit 13 – Completions and Openings

6 Regional Institutions had Related Programs (2021)	89 Regional Completions (2021)	241 Annual Openings (2021)
---	--	--------------------------------------

Source: Economic Modeling Specialists International (EMSI)

Related Programs

CIP Code	Program	Completions (2021)
48.0508	Welding Technology/Welder	89

Source: Economic Modeling Specialists International (EMSI)

CCC and Non-CCC Awards

Exhibit 14 lists the number of completers from programs related to Welding Technology in the South Central Coast region.

Exhibit 14 – CCC and Non-CCC Awards the South Central Coast, 2021

CCC Programs	Completers
Cuesta College	49
Allan Hancock College	14
College of the Canyons	13
Antelope Valley College	10
Ventura College	3
Non-CCC Programs	Completers
Pacific Coast Trade School	0

Source: Economic Modeling Specialists International (EMSI)

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the regional Welding Technology Programs (TOP: 0956.50) for the 2018-2019 academic year.

- Completers of Welding Technology programs from the 2018-2019 academic year in the South Central Coast region had a **median annual wage upon completion of \$35,496**.
- 50% of students are **employed within a year** after completing a program.
- 49% of students **attained a living wage** within a year of completion.
- Completers experienced an average of +39% **change in earnings after exiting**.
- 82% of students were **part-time**, 17% **skill builders**, 40% **first-generation**, and 73% **economically disadvantaged**.

Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represent the labor market demand for relevant positions most closely related to Welding Technology. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions. All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.