Labor Market Analysis for:
0956.50 Welding Technology

Inland Empire/Desert Center of Excellence, October 2024

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Summary

Program LMI Endorsement	All LMI Criteria Met	Some LMI Criteria Met (Proceed with Caution)	LMI Criteria NOT Met
	✓	☐	☐

Program LMI Endorsement Criteria		
Supply Gap	**Yes** ✓	No ☐
	Comments: There is *projected* to be **495 annual job openings** throughout the Inland Empire/Desert region, which is more than the **493 annual average awards conferred by educational institutions over the last 3 years.** Supply data includes both community college awards (99) and non-community college awards (394).	
Living Wage	**Yes** ✓	No ☐
	Comments: **The majority (96%) of annual job openings** for these two occupations **have entry-level hourly wages above the IE/D living wage of $20.42.**[1]	
Education	**Yes** ✓	No ☐
	Comments: **Most job postings for target occupations require a high school diploma or equivalent (96%).** See exhibits 8 and 9 for more details.	

The Inland Empire/ Desert (IE/D) Center of Excellence for Labor Market Research (IE/D COE) reviewed the following occupations to prepare this report:

- Below Middle-Skill (typically require training/education at or below a HS diploma)
  - Welders, Cutters, Solderers, and Brazers (51-4121)
  - Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders (51-4122)

Summary of findings

Deman

- The number of jobs related to the listed occupations is projected to increase 4% through 2028, with 495 annual job openings (new and replacement jobs).
- Hourly entry-level wages for one of the two occupations are above living wage at the 25th percentile hourly wage ranging from $17.71 to $21.48 in IE/D.
- There were 200 online job postings from 94 employers over the past 12-months with the highest postings for welders and welders/fabricators.
- Most job postings for target occupations require a high school diploma or equivalent (96%), followed by associate degree (4%), and bachelor's degree (<1%).

Supply

- On average, there were 493 annual awards conferred by educational institutions over the last 3 years in related fields: 99 from community colleges and 394 from other institutions (e.g., 4-year universities, private schools).
- IE/D community college students that exited these programs in the 2021-22 academic year earned a median annual wage of $33,952 ($16.32 per hour).
- 61% of students that exited their program in 2021-22 reported that they are working in a job closely related to their field of study.
- Community college programs play an important role diversifying the talent pipeline in these occupations. Most IE/D professionals in welding occupations are Hispanic/Latino (63%), "mid-career" or "late career" age categories (67%), and male (94%). Most community college students in related programs are Hispanic/Latino (65%), "pre-career/college" age category (64%), and male (90%).

[1] *The UW self-sufficiency standard is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is $26.30 in Riverside County and $25.17 in San Bernadino County.*

Introduction

California Community College Welding Technology (TOP 0956.50) programs prepare students for employment in welding techniques, processes, and equipment applied in accordance with diagrams, blueprints, or other specifications (Taxonomy of Programs, 2023). The knowledge, skills, and abilities trained by Welding Technology programs lead to employment in occupations related to welding.

Job Demand

In 2023, there were 4,552 jobs in occupations related to welding in the IE/D region. Regional employment for this occupation group is projected to increase by 4% through 2028 with 495 job openings projected annually. Exhibit 1 displays the job count, five-year projected job growth, and job openings in the region.

Exhibit 1. Five-year projections for occupations related to welding, IE/D Region, 2023-2028

Occupation	SOC	2023 Jobs	2028 Jobs	2023 - 2028 % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)
Welders, Cutters, Solderers, and Brazers	51-4121	4,371	4,573	5%	2,383	477
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	51-4122	181	180	-1%	90	18
Total		**4,552**	**4,753**	**4%**	**2,474**	**495**

SOURCE: LIGHTCAST 2024.2

Job Postings

The following analysis for occupations related to welding using online job posting data.

Important note: The data produced in this section were generated by leveraging online job posting data sourced from Lightcast, which is the labor market analytics software tool COEs use to produce these briefs. The job posting data is collected from scraping online job boards such as LinkedIn, Indeed, Glassdoor and many others. The process Lightcast uses to assemble this data does have some limitations due to methods that recruitment professionals sometimes use (e.g., posting one job to fill multiple positions). For example, the number of jobs posted is not necessarily the same as the number of job vacancies.[2] While not perfect, Lightcast leverages machine learning and other AI technologies to enrich, deduplicate and aggregate this information to make it a meaningful dataset.

Exhibit 2 displays the number of job ads posted for occupations related to welding over the last 12 months and the median posting duration. Over the previous 12 months, there were 200 unique job postings for occupations related to welding in the region from 94 employers.

Exhibit 2. Job ads and posting duration, IE/D Region, Oct 2023 – Sep 2024

Job Title	Job Ads	Median Posting Duration
Welders, Cutters, Solderers, and Brazers	166	27 days
Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	34	28 days
Total	**200**	

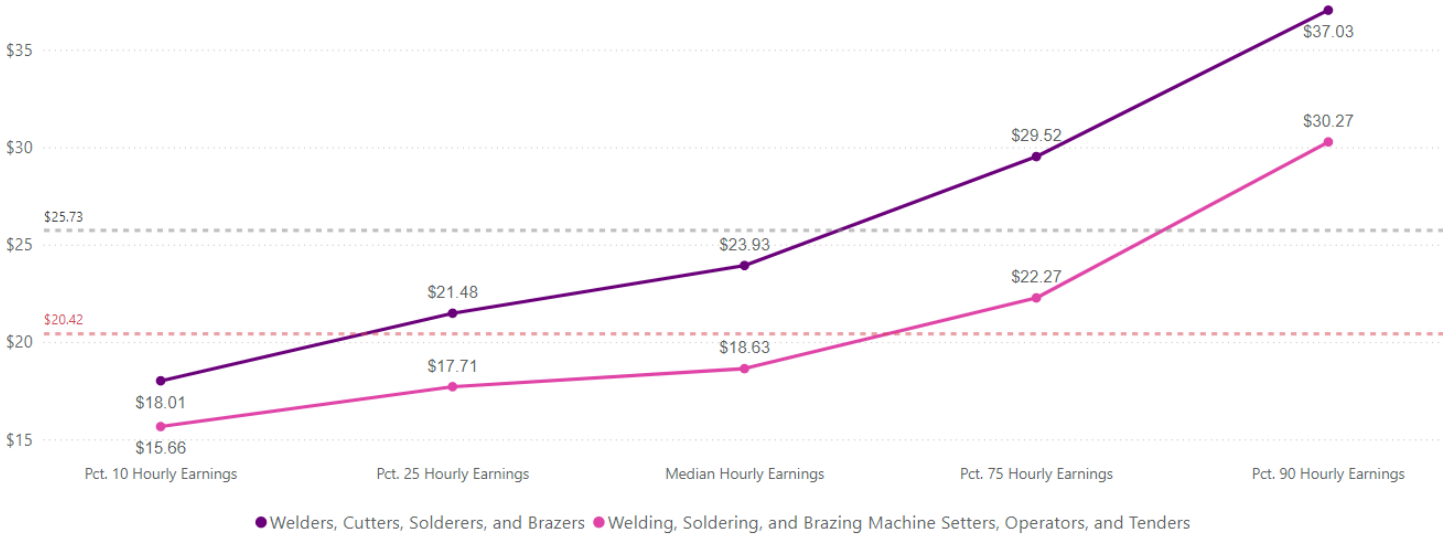
SOURCE: LIGHTCAST 2024.2

[2] *"Job Posting Analytics (JPA) Methodology." Lightcast Knowledge Base, https://kb.lightcast.io/en/articles/6957446-job-posting-analytics-jpa-methodology*

Earnings

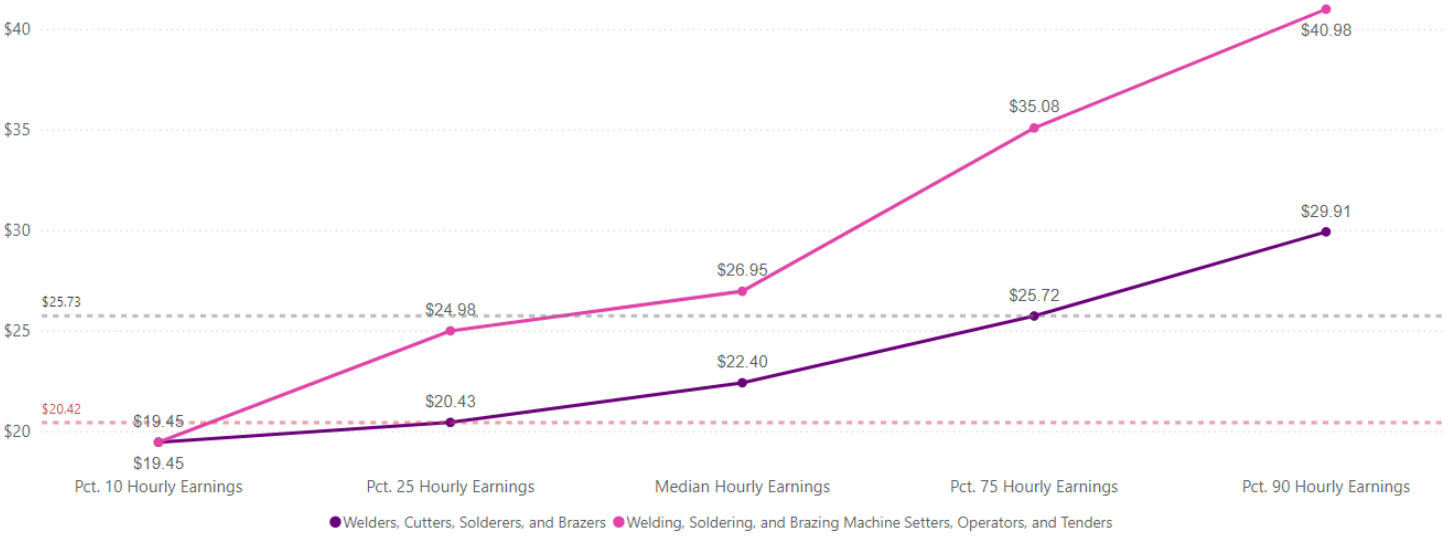
Exhibit 3a displays the hourly earnings for occupations related to welding and Exhibit 3b displays the hourly earnings for job postings of the same occupations and compares both to the UW Self-Sufficiency Standard for the IE/D[3] and the MIT IE/D living wage of $25.73.[4] The living wage criteria is determined using the data in exhibit 3a but Exhibit 3b is also shown to provide regional context using job posting data.

Exhibit 3a. Projected hourly earnings by percentile, IE/D Region, 2023



SOURCE: LIGHTCAST 2024.2

Exhibit 3b. Hourly earnings of job postings by percentile, IE/D Region, 2023



SOURCE: LIGHTCAST 2024.2

The projected entry-level earnings (that is, the earnings of the lowest paid 25% of employees in the IE/D) of one of the two occupations were above the UW Self-Sufficiency Standard for the IE/D (see Exhibit 3a). Both occupations were below the MIT living wage for an adult with no children ($25.73) in projected wages (see Exhibit 3a).

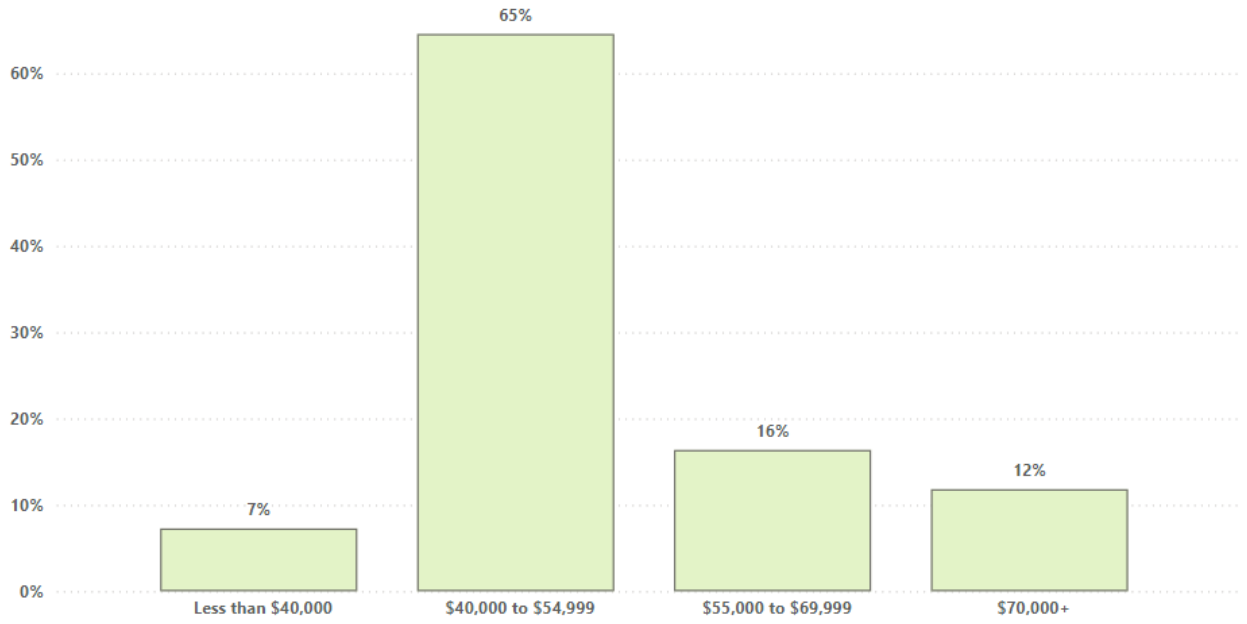
[3] *The UW self-sufficiency standard is currently used by the CO and other COEs, the self-sufficiency standard was last updated by UW in 2024. To provide an alternative perspective, the COE will provide an alternative living wage calculation from MIT in the analysis below as an additional reference point. MIT estimates, the living wage for an adult with no kids living in 2024 is $26.30 in Riverside County and $25.17 in San Bernadino County.*

[4] *ibid.*

Advertised Salary from Online Job Ads

Exhibit 4 displays the regional online advertised salaries for the occupations related to welding over the last 12 months. Online job ad salary information data suggests most employers (65%) advertise an annual salary equal to $40,000 to $54,999 ($19.23 to $26.44 per hour).

Exhibit 4. Online advertised salaries occupations related to welding, IE/D Region, Oct 2023 – Sep 2024



SOURCE: LIGHTCAST 2024.2

Online Job Advertisements: top job titles, skills, education & work experience.

Exhibit 5 displays the job titles most frequently used in job postings for the occupations related to welding over the last 12 months. Assessing the top advertised job titles may provide insight into the types of positions sought by employers.

Exhibit 5. Job titles most frequently used in job ads, IE/D Region, Oct 2023 – Sep 2024

Job Title	Unique Postings
Welders	60
Welders/Fabricators	29
TIG Welders	10
Lead Welders	7
MIG Welders	7
Structural Welders	6
Maintenance Welders	5
Certified Welders	4
Certified Welding Inspectors	4
Fitters/Welders	4

SOURCE: LIGHTCAST 2024.2

Exhibit 6 displays the employers posting the most job ads for this occupational group during the last 12 months. Showing employer names can provide insight into where students may find employment after completing a program and may inform job development and other employer engagement targets for faculty and staff involved in related programs. The employers “Morgan Truck Body” and “Pechanga Resort & Casino” had the highest unique job posts for this occupational group in the last 12 months. Posting intensity is the ratio of total job posts to unique job posts which are deduplicated. A higher posting intensity can represent the level of effort and activity the organization is putting into hiring for that position. The following report comes directly from Lightcast’s Job Posting Analytics dashboard.

Exhibit 6. Employers posting the most job ads, IE/D Region, Oct 2023 – Sep 2024

Company	Total/Unique (Oct 2023 - Sep 2024)	Posting Intensity	Median Posting Duration
Morgan Truck Body	15 / 6	3 : 1	30 days
Pechanga Resort & Casino	6 / 5	1 : 1	n/a
Skipjack Yachts	5 / 5	1 : 1	n/a
Quinn Company	6 / 4	2 : 1	56 days
Crown Technical Systems	6 / 4	2 : 1	34 days
Icon Vehicle Dynamics	5 / 3	2 : 1	14 days
Wilden Pump & Engineering	5 / 3	2 : 1	4 days
GE Aerospace	20 / 3	7 : 1	14 days
J.B. Poindexter & Co	7 / 3	2 : 1	21 days
Employee Force Provider	8 / 2	4 : 1	30 days

SOURCE: LIGHTCAST 2024.2

Exhibit 7 displays the top common, specialized and computer skills that were included in the job postings over the last 12 months. Today's demand is an important indicator of which skills employers are looking for in the current market. Analyzing skills from a historical perspective as well as projecting the future needs of employers may provide insight into how the job posting skills demand compares to the market as a whole. Rapidly growing skills are those that are increasing in demand at a faster rate than the market as a whole. [5]

Exhibit 7. Top 10 in-demand skills from employer job ads, IE/D Region, Oct 2023 – Sep 2024

Common skills	Total Postings	Skill Growth Relative to Market
Detail Oriented	34	Stable
Operations	26	Stable
Communication	25	Lagging
Lifting Ability	20	Growing
Troubleshooting (Problem Solving)	19	Growing
Positivity	18	Growing
Tape Measure	18	Stable
Management	17	Stable
Mathematics	17	Rapidly Growing
Customer Service	16	Stable

Specialized skills	Total Postings	Skill Growth Relative to Market
Metal Inert Gas (MIG) Welding	80	Rapidly Growing
Welding	80	Rapidly Growing
Gas Tungsten Arc Welding	68	Rapidly Growing
Fabrication	47	Growing
Aluminum	42	Growing
Blueprinting	33	Rapidly Growing
Hand Tools	31	Stable
Welding Equipment	31	Rapidly Growing
Sawing	28	Growing
Grinding Machine	24	Growing

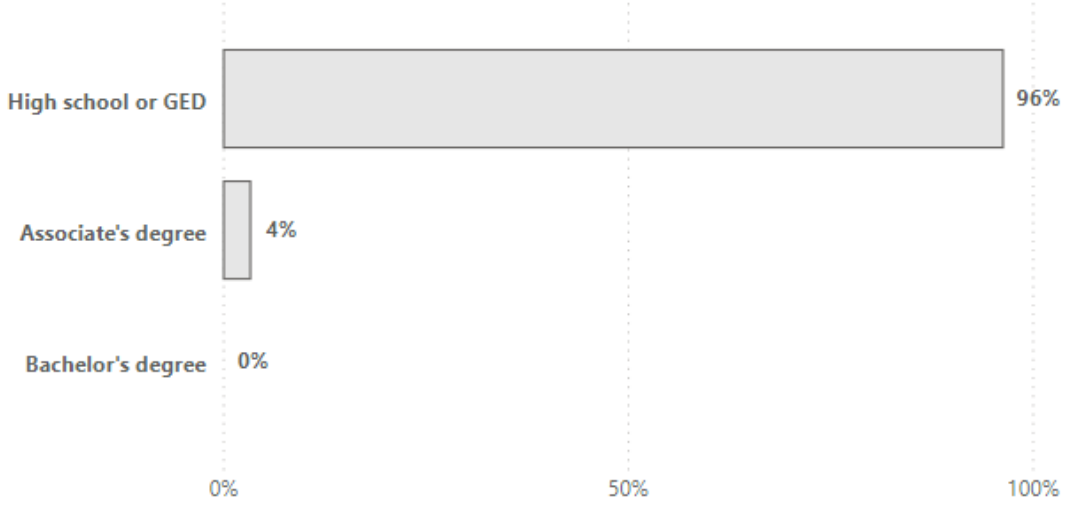
Computer Skills	Total Postings	Skill Growth Relative to Market
Microsoft Office	4	Growing
Zettabyte File System (ZFS)	3	Stable
Fleet Maintenance Software	2	Growing
Median	2	Lagging
Microsoft Excel	2	Growing
Microsoft Outlook	2	Rapidly Growing
Application Programming Interface (API)	1	Growing
Microsoft Word	1	Stable
Protractor (Software)	1	Lagging
SAP Knowledge Warehouse	1	Growing

SOURCE: LIGHTCAST 2024.2

[5] *"What are Lightcast Skill Projects", Lightcast Knowledge base, https://kb.lightcast.io/en/articles/8496296-what-are-lightcast-skill-projections*

Exhibit 8 includes the minimum educational requirements from job postings for this occupational group with High school diploma or equivalent (96%) significantly greater than associate degree (4%) or bachelor's degree (<1%).

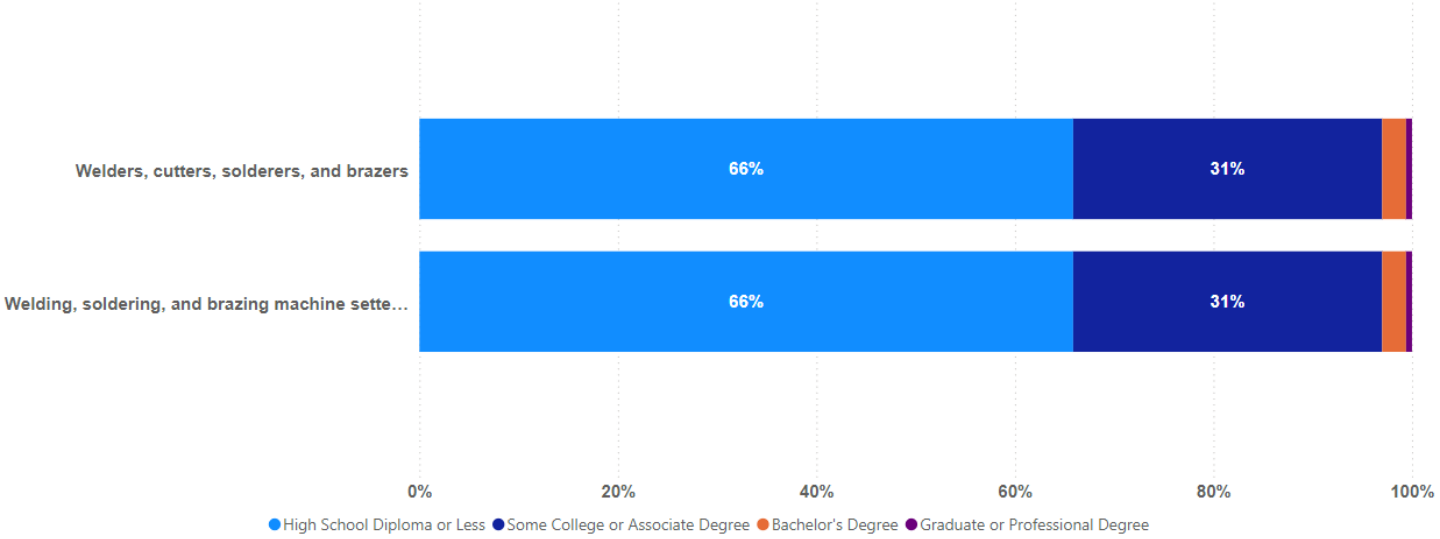
Exhibit 8 Minimum educational requirements in job postings for this occupational group, IE/D Region, Oct 2023 – Sep 2024



SOURCE: LIGHTCAST 2024.2

For the assessed occupations, the Bureau of Labor Statistics (BLS) education attainment data in Exhibit 9 for current professionals in the occupations of interest indicates that an estimated 31% of workers have completed some college or an associate degree as their highest level of education.

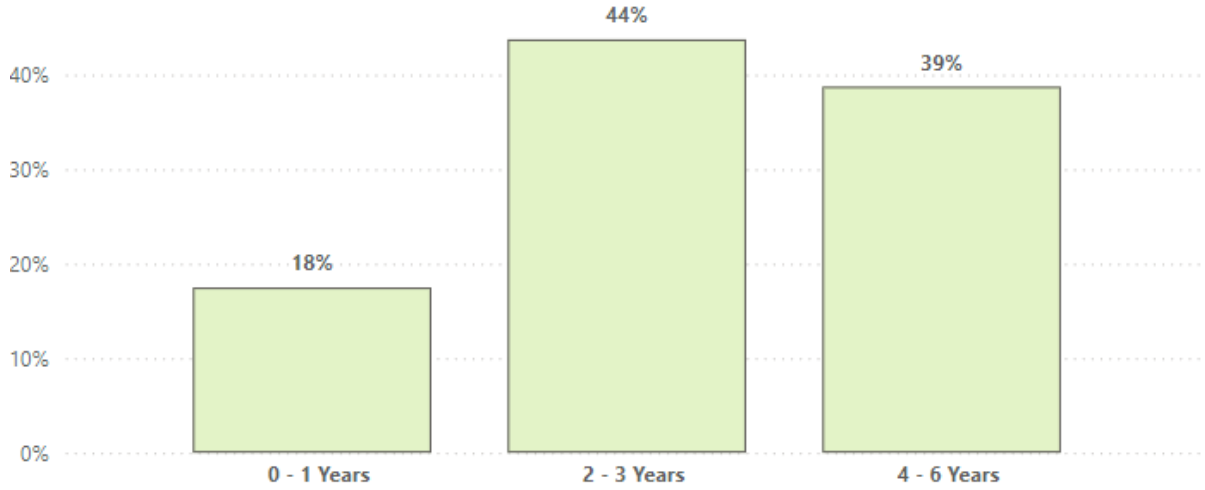
Exhibit 9 National-level Education Attainment for Occupations



SOURCE: BLS 2021

Exhibit 10 displays the work experience typically required from employer job ads for this occupational group. The plurality (44%) of employers listing minimum experience requirements sought candidates with 2-3 years of previous work experience.

Exhibit 10 Work experience requirements, IE/D Region, Oct 2023 – Sep 2024



SOURCE: LIGHTCAST 2024.2

Student Completions and Program Outcomes

Exhibit 11 displays student completions for the Welding Technology (TOP 0956.50) programs over the last three academic years (2020-2023). In the previous three academic years, five regional community colleges issued an average of 99 awards in relevant programs.

Exhibit 11 Annual average community college awards for Welding Technology (TOP 0956.50), IE/D, 2020-2023

Top Code	Program	College	2020-2021 Awards	2021-2022 Awards	2022-2023 Awards	3-Year Award Average
0956.50	Welding Technology	Riverside	22	36	31	30
0956.50	Welding Technology	Palo Verde	20	0	58	26
0956.50	Welding Technology	Victor Valley	12	24	36	24
0956.50	Welding Technology	Barstow	13	10	20	14
0956.50	Welding Technology	San Bernardino	2	11	1	5
Total			**69**	**81**	**146**	**99**

SOURCE: MIS DATA MART

Non-Community College Supply

Award completion data is available for Welding Technology/Welder (CIP 48.0508) in the IE/D for non-community college programs. However, award completion data was not found in the IE/D for other related non-community college programs: Welding Engineering Technology/Technician (CIP 15.0614).

In the previous three academic years, four regional non-community colleges institutions issued an average of 394 awards in relevant programs.

Exhibit 12 Annual average non-community college awards for welding programs, IE/D, 2019-2022

CIP	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
48.0508	Welding Technology/Welder	CET-Colton	37	32	41	37
48.0508	Welding Technology/Welder	Riverside County Office of Education-School of Career Education	36	0	0	12
48.0508	Welding Technology/Welder	Summit College	216	194	262	224
48.0508	Welding Technology/Welder	Universal Technical Institute of California Inc	108	134	122	121
Total			**397**	**360**	**425**	**394**

SOURCE: IPEDS

Strong Workforce Program Outcomes

California program outcome data may provide useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibit 13.

Exhibit 13 Welding Technology strong workforce program outcomes, IE/D, most recent academic year

Program metric title	Inland Empire/Desert	Statewide
Attained a living wage (completers and skills-builders)	59%	59%
Completed 9+ career education units in one year	25%	29%
Job closely related to the field of study	61%	70%
Median annual earnings (all exiters)	$33,952	$39,750
Students who attained a noncredit workforce milestone in a year	76%	46%
Students who earned a degree, certificate, or attained apprenticeship	38	862
Unduplicated count of enrolled students	684	10,226

SOURCE: LAUNCHBOARD

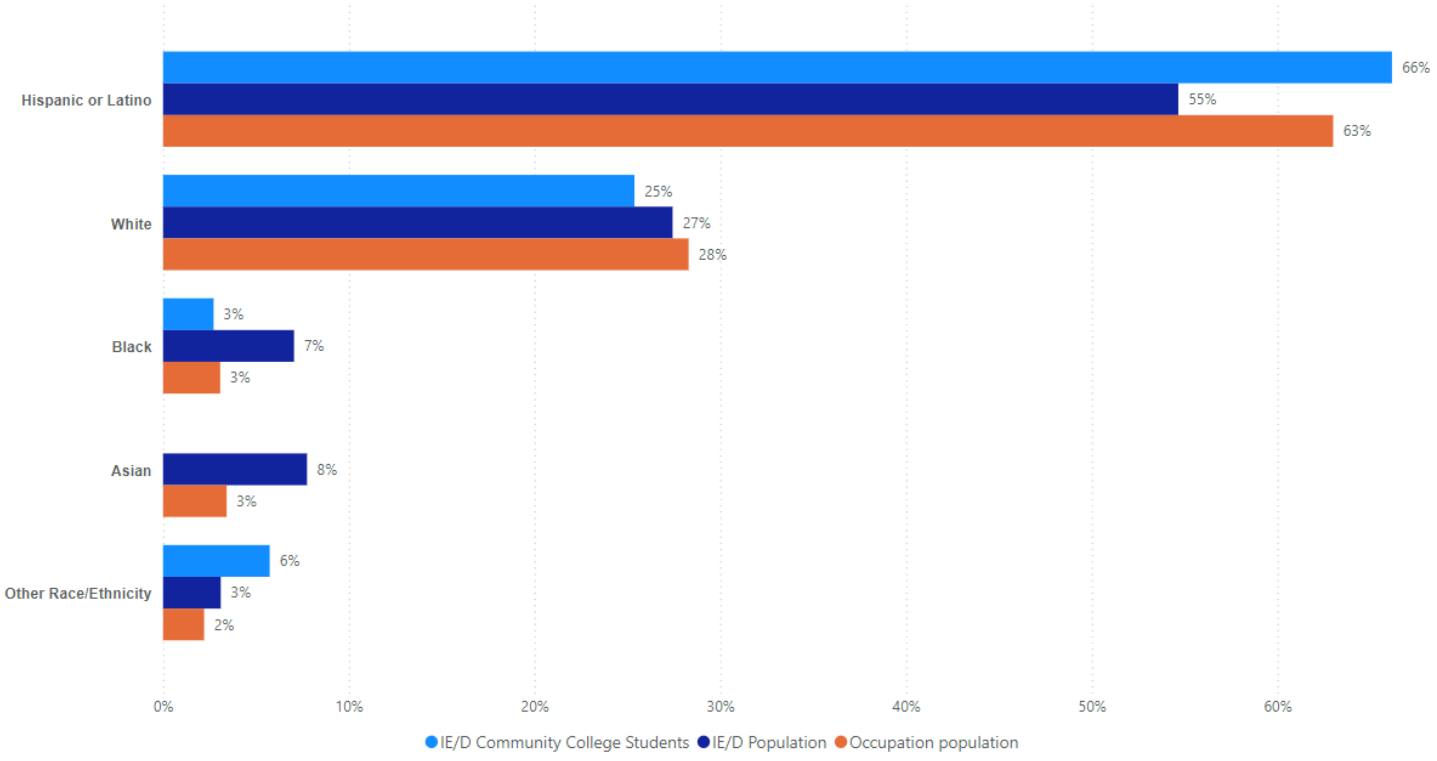
Building an Inclusive Economy

This section examines demographic data for IE/D community college students in Welding Technology programs compared to the IE/D population. We also include demographics for related occupation data for the two occupations related to welding. This analysis can be used to:

- Understand the community college system's current or potential role supporting a diverse talent pipeline into the occupations of interest.
- Inform students (and the faculty and staff working with them) the extent to which individuals from similar demographic groups are over or underrepresented in the professions related to their field of study.
- Inform employers of the diverse talent pipeline coming from the community college system for the occupations analyzed.

Notably, 65% of students enrolled in Welding Technology programs are Hispanic/Latino, which is similarly representative with Hispanic/Latino workers in occupations related to welding in the IE/D region (63%). Additionally, 3% of the IE/D population that are employed in occupations related to welding are Black, which is similarly representative to IE/D community college students (3%) but significantly lower than the IE/D population (7%). Though 8% of the IE/D population are Asian, <1% of students in Welding Technology programs and only 3% of the workers employed in occupations related to welding are Asian.

Exhibit 14 Program and County Demographics by Ethnicity



SOURCE: LIGHTCAST 2024.2 AND LAUNCHBOARD

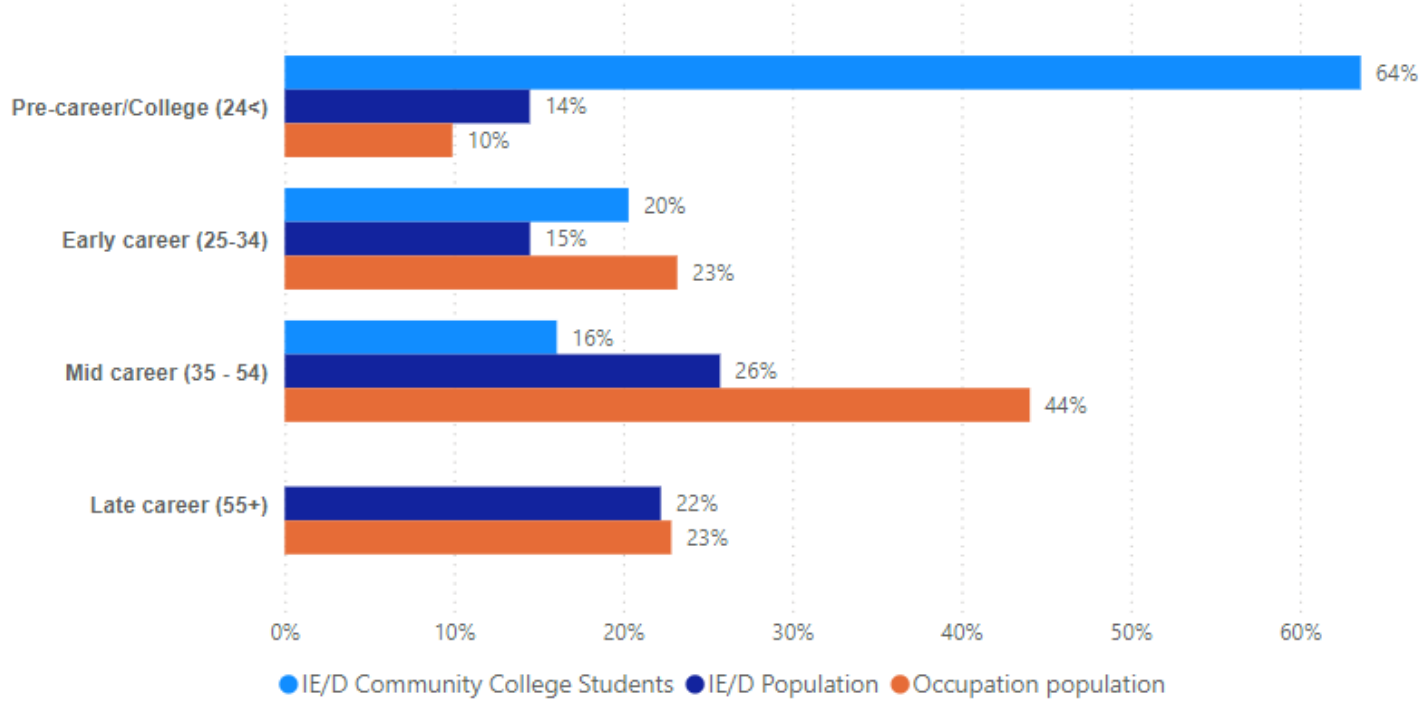
Most IE/D professionals in welding occupations are Hispanic/Latino (63%), "mid-career" or "late career" age categories (67%), and male (94%). Most community college students in related programs are Hispanic/Latino (65%), "pre-career/college" age category (64%), and male (90%). Major takeaways:

- Community colleges are an important talent source for employers committed to greater racial/ethnic diversity, especially Hispanic/Latino professionals.
- College programs may want to consider strategies to engage more women into these programs.

Exhibit 14 compares the age of IE/D community college students enrolled in Welding Technology programs compared to the IE/D population.

The majority of students enrolled in Welding Technology programs are either in the “pre-career/college” age category (64%) as compared to IE/D population (14%) and workforce (10%) in these two occupations related to welding. These programs are an important entry point for young welding professionals.

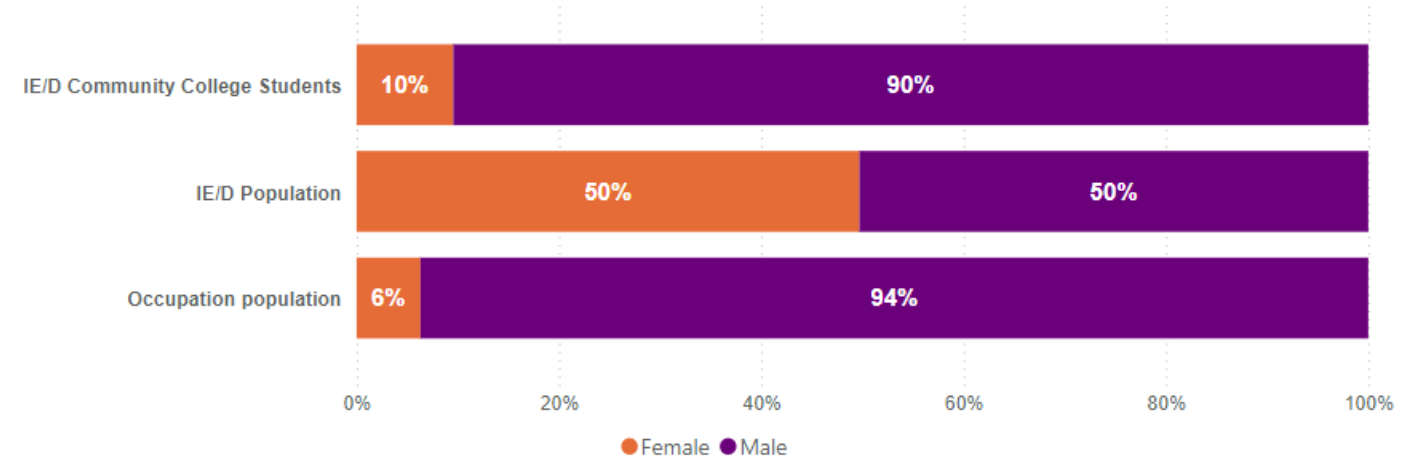
Exhibit 15 Program and County Demographics by Age



SOURCE: LIGHTCAST 2024.2 AND LAUNCHBOARD

Exhibit 15 compares the gender of IE/D County community college students enrolled in Welding Technology programs compared to the IE/D population. We also include demographics for related occupation data for the two occupations related to welding to identify potential diversity and equity issues addressable by community college programs.

Exhibit 16 Program and County Demographics by Gender



SOURCE: LIGHTCAST 2024.2 AND LAUNCHBOARD

Appendix: Methodology

Exhibit 11 displays the average annual California Community College (CCC) awards conferred during the three academic years between 2020 and 2023 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variations that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2023a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS) administered by Santa Rosa Junior College (LaunchBoard, 2023a).

Appendix: References

Type of Data	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment. https://lightcast.io/
Living Wage (UW)	This living wage is derived from Center for Women's Welfare, University of Washington (2024), which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. For more information, see: https://selfsufficiencystandard.org/California. The living wage for one adult in San Bernardino County is $20.07 per hour ($42,392 annually). The living wage for one adult in Riverside County is $20.76 per hour ($43,854 annually). The average living wage to represent Inland Empire/Desert is $20.42 per hour ($43,123 annually).
Living Wage (MIT)	This living wage is derived from MITs Living Wage Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data assesses the cost of housing, food, childcare, health care, transportation, and taxes. For more information, see: https://livingwage.mit.edu/pages/methodology The living wage for one adult in San Bernardino County is $25.17 per hour ($52,353.60 annually). The living wage for one adult in Riverside County is $26.30 per hour ($54,704 annually). The average living wage to represent Inland Empire/Desert is $25.74 per hour (53,539.20 annually)
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions

Student Metrics and Demographics	LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx