



SKILLS THAT SUPPORT THE CCCCCO ADVANCED MANUFACTURING SECTOR

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INLAND EMPIRE/DESERT REGION



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The following team members of the Inland Empire/Desert Center of Excellence for Labor Market Information (COE) authored this report:

Shannon Moran, COE Director
Chris Cruzcosa, Senior Research Analyst
Paul Vaccher, Research Analyst

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EXECUTIVE SUMMARY

The California Community College Chancellor's Office (CCCCO) Advanced Manufacturing Priority Sector in the Inland Empire/Desert Region accounts for 97,863 jobs in 2024 and is projected to grow by 2% by 2029. Middle-skill advanced manufacturing occupations, those requiring more than a high school diploma but less than a four-year degree, represent 32% of all advanced manufacturing-sector jobs and generate nearly 3,400 annual openings. Approximately 62% of advanced manufacturing-sector jobs are below middle-skill, or entry-level, potentially representing an opportunity to upskill the existing workforce into higher-paying middle-skill jobs.

This report examines the skills that define middle-skill advanced manufacturing occupations, relying on employer job postings for five major occupational groups that together accounted for 22,824 regional jobs in 2024. Using a comparison of two date periods, 2018–2023 and 2023–2025, the analysis identifies which skills are increasing, shrinking, or persistently demanded across the sector.

Key Findings

Employer demand is shifting toward technical competencies.

Across occupational groups, foundational skills remain some of the largest competencies requested by employers, with problem solving and communication consistently appearing as a top skill statewide and regionally (e.g., Exhibits 2.1.6, 2.2.6, 2.3.6, 2.4.6, 2.5.6).

However, the analysis (Section 3) also shows that more than half of all growing skills (~67%) are technical or specialized, reflecting rising expectations for applied management and electrical operations.

These include:

- Machinery
- Blueprinting
- Personal Protective Equipment
- Electrical Systems

These skills have grown significantly across multiple minor occupational groups (e.g., Exhibits 2.1.4, 2.1.5, 2.3.4, 2.4.5) and point to an evolving operating environment where applied knowledge and electrical expertise play a larger role in daily work.

Customer service and computer literacy skills are declining across the sector.

The shrinking-skills analysis shows a trending decline in computer literacy and customer services, including:

- Verbal Communication Skills
- Computer Literacy
- Customer Service

More than 53% of shrinking skills fall within foundational category, but they represent tasks that employers increasingly assume will be supported by other roles or automated systems and the focus is now on problem solving skills which cannot be fully automated at this time (Exhibits 2.1.7, 2.2.7, 2.3.7, 2.4.7, 2.5.7).

Even within specialized technical categories, the declining skills tend to be manual labor competencies, such as drill press and appliance repair, that may be replaced by automated functions that perform these tasks for the user.

Certifications and licensure continue to anchor employer expectations.

Qualifications data across all five occupational groups are less prevalent (the median is less than 10%) compared to other sectors such as Healthcare, but common trends exist including:

- Valid Driver's License
- Commercial Driver's License (CDL)
- Security Clearance
- Forklift Certificate
- Automotive Service Excellence (ASE) Certification

These credentials appear more consistently than many skills and often serve as the clearest signal of job readiness (e.g., Exhibits 2.1.9, 2.2.9, 2.3.9, 2.4.9, 2.5.9).

These patterns reveal a structural shift in middle-skill manufacturing work.

Across the sector, employer postings increasingly emphasize competencies requiring management, problem solving, and machinery while de-emphasizing skills tied to customer communication. This reflects a broader transition in advanced manufacturing workplaces in which digital systems, reduced client interactions, and AI-enabled tools reduce the need for direct communication with the customer base (Section 3).

As a result, middle-skill manufacturing workers are expected to engage less directly in the verbal communication and customer service dimensions of this field, and focus more on technical operations.

Implications for Education & Training in the Inland Empire/Desert Region

The regional shift in skill demand points to several opportunities for K12 and community college programs to strengthen workforce alignment:

1. Align curriculum with rising foundational and technical skills.

Programs should integrate problem solving, operations, machinery, electrical systems, and management, skills showing the strongest growth across minor occupational groups (Section 3).

2. Embed credentials within program structures.

Given the consistency of employer demand for vehicle operations and security clearances, and other certifications, colleges should map coursework, field work, and internships directly to these credentials. K12 pathways can strengthen 9–14 alignment by offering pre-certification exposure or dual enrollment opportunities in DL and CDL preparation, and related areas.

3. Strengthening K12 pathway - Community College Manufacturing Pathway Alignment

K12 advanced manufacturing pathways can use the qualification and program crosswalks to better align coursework with community college expectations. High schools offering Graphic Production Technologies, Machining and Forming Technologies, Welding and Materials Joining, and Product Innovation and Design pathways can integrate early exposure to skills such as problem solving, electrical systems, machinery, management, operations, and blueprinting skills

for pre-certification or dual-enrollment opportunities that connect directly to in-demand manufacturing credentials.

Conclusion

The CCCCO Advanced Manufacturing Priority Sector is a key part of the Inland Empire/Desert Region workforce, and employer demand within this sector is shifting toward both human-centered foundational skills and higher-level technical competencies. At the same time, soft skills are declining as digital systems take on a larger role in manufacturing operations and the need for customer service in this field declines.

This report is a part of a ten-sector series that provides a skills-based roadmap for strengthening workforce preparation across K12, community colleges, and regional partners. Together with forthcoming analyses on artificial intelligence, job creation strategies, and climate-related shifts in the regional economy, this work will guide the development of programs that equip learners for the demands of today's advanced manufacturing sector, and the transformations ahead.

INTRODUCTION

The purpose of this report is to strengthen community college program development and review by aligning regional education pathways with the evolving skill needs of the Inland Empire/Desert economy. Using the California Community Colleges Chancellor's Office (CCCCO) priority sector framework as its foundation, this analysis focuses on the skills that define and sustain the region's middle-skill advanced manufacturing workforce, providing research for K12 schools and community colleges to examine how well programs prepare students for occupations within this priority sector.¹

This report examines the specialized and foundational skills appearing in employer job postings for middle-skill advanced manufacturing occupations. Middle-skill occupations are those that typically require more than a high school diploma, but less than a four-year degree, and are largely associated with community college CTE programs, placing community colleges at the center of preparing the workforce for advanced manufacturing employment.

This report is the third in a ten-part series that leverages the CCCCCO priority sector association to the region's middle-skill occupations. The first four sector reports will be released ahead of a companion analysis examining how artificial intelligence, job creation strategies, and emerging climate and clean-tech initiatives, outlined in the Thrive Inland SoCal California Jobs First Regional Plan, are reshaping skill demand in cybersecurity, manufacturing, climate innovation, and technology occupations.² That research will sit alongside the sector series to help colleges understand both current and future drivers of workforce change. Following the release of this broader analysis, the COE will complete the remaining sector reports (sectors five through ten), providing a full view of skill needs across the regional economy.

The ten-part skills analysis reports will be released in the following order:

1. Health
2. Energy, Construction, and Utilities
3. Advanced Manufacturing
4. Information and Communication Technologies/Digital Media (ICT/DM)
5. Business and Entrepreneurship
6. Advanced Transportation and Logistics
7. Retail, Hospitality, and Tourism
8. Public Safety
9. Education and Human Development
10. Agriculture, Water, and Environmental Technologies

¹ <https://www.cccco.edu/About-Us/Chancellors-Office/Divisions/Workforce-and-Economic-Development/Strong-Workforce-Program/SWP-Archive/Events/K12-SWP-Industry-Sector-Crosswalk>

² Thrive Inland SoCal California Jobs First (CJF) Regional Plan Part II. 2024. Retrieved from: <https://www.labor.ca.gov/wp-content/uploads/sites/338/2024/11/Inland-SoCal-RPP2-DRAFT.pdf>

The report seeks to answer three major questions:

- Section 1: How does the middle-skill advanced manufacturing workforce support the regional economy?
- Section 2: What skills are essential for middle-skill advanced manufacturing workers?
- Section 3: How can skills information be used to guide career education program development in the Inland Empire/Desert region?

METHODOLOGY

This report analyzes the skills that are essential to the middle-skill workforce in occupations that are associated with the California Community College Chancellor's Office (CCCCO) Advanced Manufacturing Sector. The Chancellor's Office grouped career and technical education programs into twelve priority sectors, further referred to as CCCCCO priority sectors³. The grouping of community college programs by CCCCCO priority sector facilitates the analysis of programs and occupations that have similar knowledge bases and skillsets. The Center of Excellence, in collaboration with the CCCCCO, developed a crosswalk that identifies vocational occupations associated with each program code. This crosswalk serves as the foundation for program and workforce assessments by the CCCCCO priority sector. Please note that the CCCCCO priority sector should not be confused with the industry employment sectors identified by the North American Industry Classification System (NAICS). Additionally, only ten CCCCCO reports will be developed as the Life Sciences/Biotech and Global Trade priority sectors are typically rolled up into the larger sectors, Health and Business and Entrepreneurship, respectively.

Skills considered essential to the CCCCCO advanced manufacturing priority sector occupations were identified through an analysis of employer job advertisements. Job advertisement information, such as skills and qualifications, was obtained from Lightcast's Job Posting Analytics, which aggregates job advertisements posted over 220,000 current and historical sources.⁴ To provide a more nuanced perspective and to ensure the utility of this report, skills and qualifications information is analyzed at the minor occupation group level.

The Standard Occupational Classification (SOC) system aggregates occupation information by four levels: major group, minor group, broad occupation, and detailed occupation.⁵ This report relies on the minor occupational groupings of detailed occupations for the skills analysis as it provides greater detail than the broader major occupational groups and ensures the feasibility and readability of this study, which would be lacking in a detailed occupation skills analysis.

The following is an example of the SOC coding structure for Mechanical Drafters (17-3013).

- Major Occupational Group: Architecture and Engineering Occupations (17-0000)
 - Minor Occupational Group: Electrical and Electronic Equipment Mechanics, Installers, and Repairers (17-3000)
 - Broad Occupation: Drafters (17-3010)
 - Detailed Occupation: Mechanical Drafters (17-3013)

Minor occupational groups enable this report to focus on occupations connected by similar work activities and area of focus in the priority sector, in order to determine what skills are either currently most in-demand, the demand is growing rapidly, or the demand is shrinking rapidly. This data will allow program designers, owners, and administrators to have a window into what skills employers need in their workforce for each group of occupations and how to plan for growing future needs.

This analysis focuses on minor occupational groups comprising three or more detailed occupations related to the CCCCCO advanced manufacturing sector. This ensures that the occupations are grouped by similar work activities and have sufficient job advertisements to analyze. As a result of this

³ DataVista Sector Explanation. 2024. Retrieved from: <https://datavista.cccco.edu/resources/7>

⁴ Lightcast. Job Posting Analytics (JPA) Methodology. 2025. Retrieved from: <https://kb.lightcast.io/en/articles/6957446-job-posting-analytics-jpa-methodology>

⁵ Bureau of Labor Statistics. Standard Occupational Classification and Coding Structure. 2018. Retrieved from: https://www.bls.gov/soc/2018/soc_2018_class_and_coding_structure.pdf

requirement, there are seven occupations related to the CCCC advanced manufacturing sector that are not included in this skills analysis. A list of these occupations can be found in the Appendix.

The skills analysis compares skills posted over a two-year period (October 2023 – September 2025) to a historical five-year period (October 2018 – September 2023) to identify skills that are growing and shrinking in terms of their prevalence in job ads. This report intentionally uses a two-year period for the current analysis to ensure a sufficient volume of recent job advertisements and avoid the instability that can come with relying on a single year of data. The five-year historical period provides a stable benchmark of longer-term industry skill patterns and reduces the influence of short-term fluctuations. This analysis also illuminates the skills with the highest share of job ads in the most recent period to address employer demand for skills that are persistently in-demand across time.

A goal for this research was to include skills in this report that are most significant for the CCCC advanced manufacturing sector workforce, based on how frequently they appear in employer job postings. To ensure the analysis focuses on skills that employers consistently value, only skills appearing frequently in job ads within each minor occupational group during the most recent period (October 2023–September 2025) were included.

The Lightcast taxonomy organizes skills into a tiered structure that groups related competencies according to the type of work or task they support. Within this framework, skills are categorized as common, specialized, or software skills. To determine which skills should be included in our analysis, we examined how frequently individual skills appear in job postings. We calculated the median share of job ads in which common skills appear across all occupations, providing a baseline measure of typical skill prevalence. Our analysis found that common skills typically appeared in roughly five percent of job postings across occupations. We used this median value as the threshold for determining which skills were included in our research.

The five percent threshold is sufficient to capture in-demand skills while eliminating skills included in job ads that are not essential for employment in the minor occupational group. Additionally, in-demand skills found in employer job ads posted throughout California are also included in this analysis to provide context for the regional skills data, highlighting nuances of the regional employment environment.

Foundational skills, or common skills, “are prevalent across many different occupations and industries, including both personal attributes and learned skills.”⁶ Since these skills are found across industries, they are considered foundational for the workplace. Specialized skills, also known as technical skills, are those that equip an individual to perform specific tasks effectively.⁷ Our analysis of specialized skills will denote whether these skills were specific to a minor occupation group, or were identified across multiple minor groups, appearing to be industry specific skills.

⁶ Lightcast. Skills Glossary. 2023. Retrieved from: <https://kb.lightcast.io/en/articles/7934140-skills>

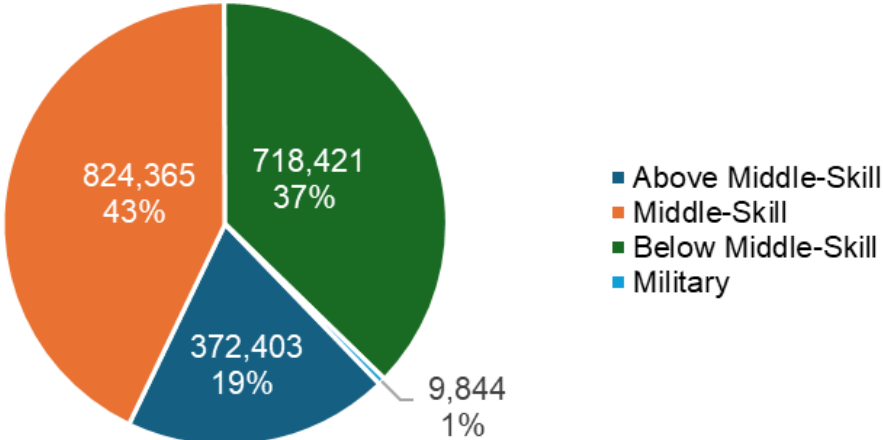
⁷ Ibid.

SECTION 1: HOW DOES THE MIDDLE-SKILL ADVANCED MANUFACTURING WORKFORCE SUPPORT THE REGIONAL ECONOMY?

1.1 REGIONAL EMPLOYMENT

In 2024, there were nearly 1.93 million jobs in the Inland Empire/Desert Region. Exhibit 1.1.1 displays the distribution regional jobs in 2024 by skill level. Approximately 824,400 or 43% of regional jobs are middle skill. The number of regional jobs is projected to grow by over 139,000 through 2029, representing 7% job growth. While there are over 257,500 annual job openings expected between 2024 and 2029 across all jobs, these employment opportunities are not evenly distributed by skill level. Approximately 41% of annual job openings in the Inland Empire/Desert Region are expected for middle-skill workers, at over 107,500 annual job openings.

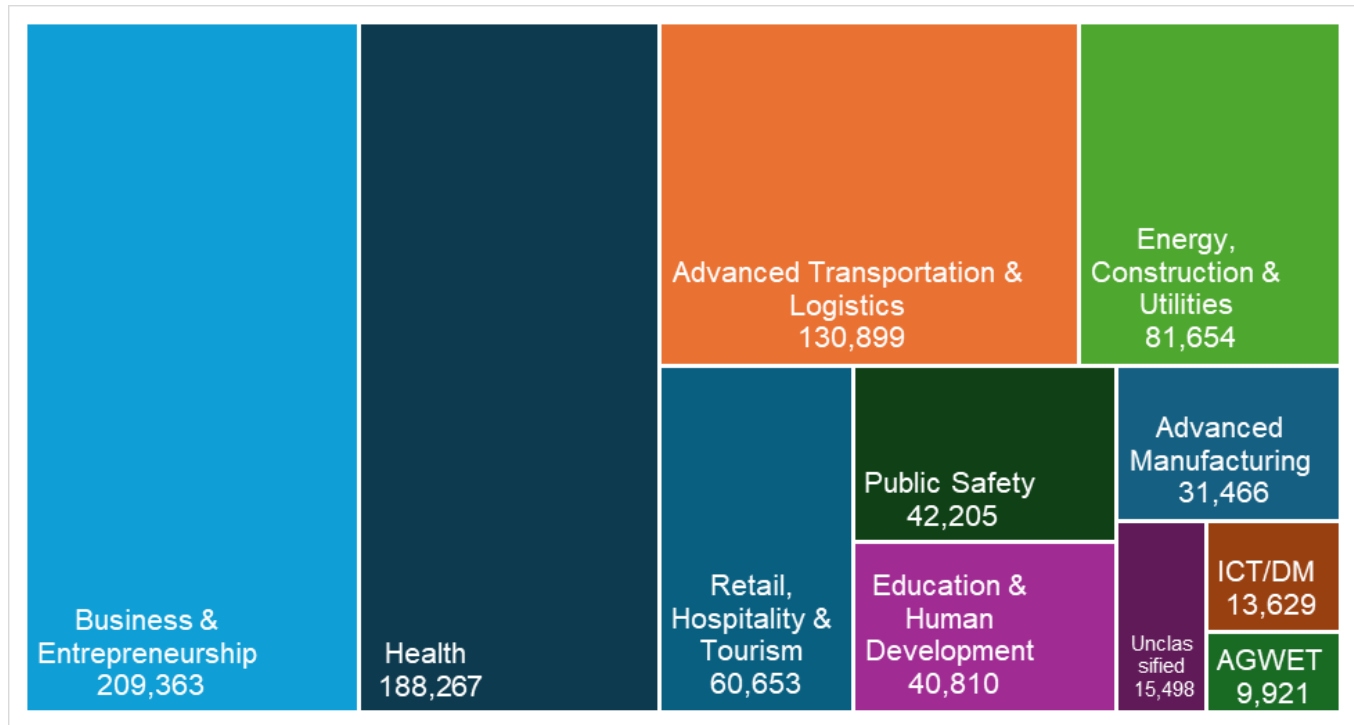
Exhibit 1.1.1: Distribution of Employment by Skill Level, Inland Empire/Desert Region, 2024



Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

Exhibit 1.1.2 displays the distribution of middle-skill employment by CCCC priority sector in the Inland Empire/Desert Region in 2024. The CCCC advanced manufacturing priority sector contained the third fewest middle-skill jobs in 2024, with 31,466 jobs. Approximately one in 25 middle-skill jobs in the region are associated with the CCCC advanced manufacturing sector. This CCCC priority sector is projected to provide approximately three percent of all middle-skill annual job openings in the region between 2024 and 2029.

Exhibit 1.1.2: Distribution of Middle-Skill Employment by CCCC Priority Sector, Inland Empire/Desert Region, 2024



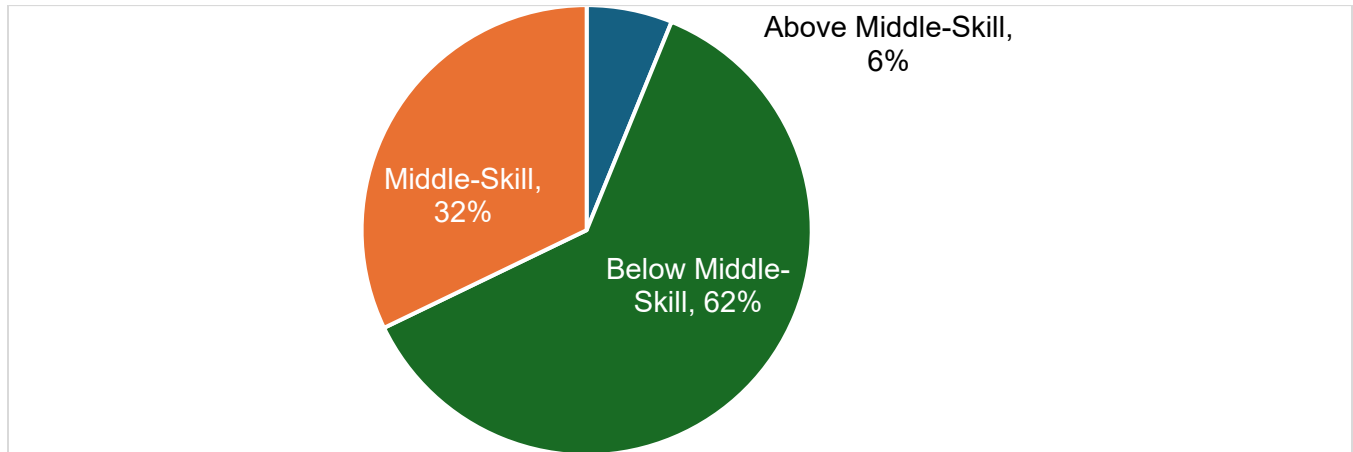
Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

1.2: ADVANCED MANUFACTURING SECTOR OVERVIEW

The CCCC advanced manufacturing priority sector contains 27 related TOP codes used by community college career and technical education programs. Across all levels of educational attainment, experience, and training, there are 109 occupations related to the CCCC advanced manufacturing priority sector, making it the largest sector in terms of detailed occupation counts. While the CCCC advanced manufacturing priority sector is not a significant source of regional employment, it does provide the regional workforce with strong wages, averaging \$35 per hour across middle-skill occupations. Approximately 5% of all regional jobs are in the CCCC advanced manufacturing priority sector, totaling 97,863 jobs in 2024. This sector’s share of regional employment, 5.1%, is slightly greater than California’s share overall at 4.9%, but less than the United States, as a whole, at 6.3%. Regional advanced manufacturing employment is projected to grow by 2.2% through 2029, greater than advanced manufacturing employment projections in California at 1.1%, but less than national trends at 3.5%.

Exhibit 1.2.1 displays the share of CCCC advanced manufacturing sector jobs by skill level in the Inland Empire/Desert Region in 2024. Of the 109 occupations associated with this sector, 62 are below middle-skill, accounting for 62% of regional advanced manufacturing sector jobs in the Inland Empire/Desert Region in 2024, indicating many jobs in this sector do not require a postsecondary education. Middle-skill workers comprise 32% of the CCCC advanced manufacturing sector’s jobs, with 31,466 jobs across 37 middle-skill occupations in 2024. Only 10 above middle-skill occupations are located in the advanced manufacturing priority sector, comprising 6% of sector jobs in 2024.

Exhibit 1.2.1: Distribution of Advanced Manufacturing Employment by Skill Level, Inland Empire/Desert Region, 2024



Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

Exhibit 1.2.2 displays minor occupational group employment for middle-skill occupations in the CCCC advanced manufacturing priority sector. This report provides an in-depth skills analysis for five minor occupational groups related to the CCCC advanced manufacturing priority sector, accounting for nearly 22,824 jobs in 2024. See Appendix for a list of the seven middle-skill CCCC advanced manufacturing sector occupations not included in the skills analysis. Middle-skill advanced manufacturing occupations are projected to grow by 2% through 2029, primarily driven by job growth in the other production occupations and other installation, maintenance, and repair occupations minor groups, which are projected to add 85% of regional jobs through 2029.

Exhibit 1.2.2: Middle-skill Advanced Manufacturing Employment by Minor Group, Inland Empire/Desert Region, 2024-2029

SOC Minor Group Title	2024 Jobs	2029 Jobs	2024 - 2029 % Change	Average Annual Openings	Occupation Count
Other Production Occupations	8,973	9,037	1%	1,010	8
Other Installation, Maintenance, and Repair Occupations	5,383	5,859	9%	546	7
Metal Workers and Plastic Workers	4,318	4,304	0%	445	4
Electrical and Electronic Equipment Mechanics, Installers, and Repairers	2,394	2,442	2%	223	8
Metal Workers and Plastic Workers	1,757	1,743	-1%	169	3
Middle-Skill Total	22,824	23,385	2%	2,393	30

Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

The following section will analyze the specialized skills, foundational skills, qualifications, and programs for the above minor occupational groups.

SECTION 2: WHAT SKILLS ARE ESSENTIAL FOR MIDDLE-SKILL ADVANCED MANUFACTURING WORKERS?

2.1: OTHER PRODUCTION OCCUPATIONS

Exhibit 2.1.1 displays current and projected employment data for the other production occupations occupational group from 2024 to 2029. The other production occupations middle-skill occupational group contains eight occupations that had nearly 9,000 jobs in 2024. This occupational group is projected to grow by 1%, adding over 50 jobs to the region through 2029. Despite having a low growth rate, this occupational group is projected to provide over 1,000 annual job openings through 2029.

Exhibit 2.1.1: Current and Projected Employment for the Other Production Occupations Occupational Group, Inland Empire/Desert Region, 2024-2029

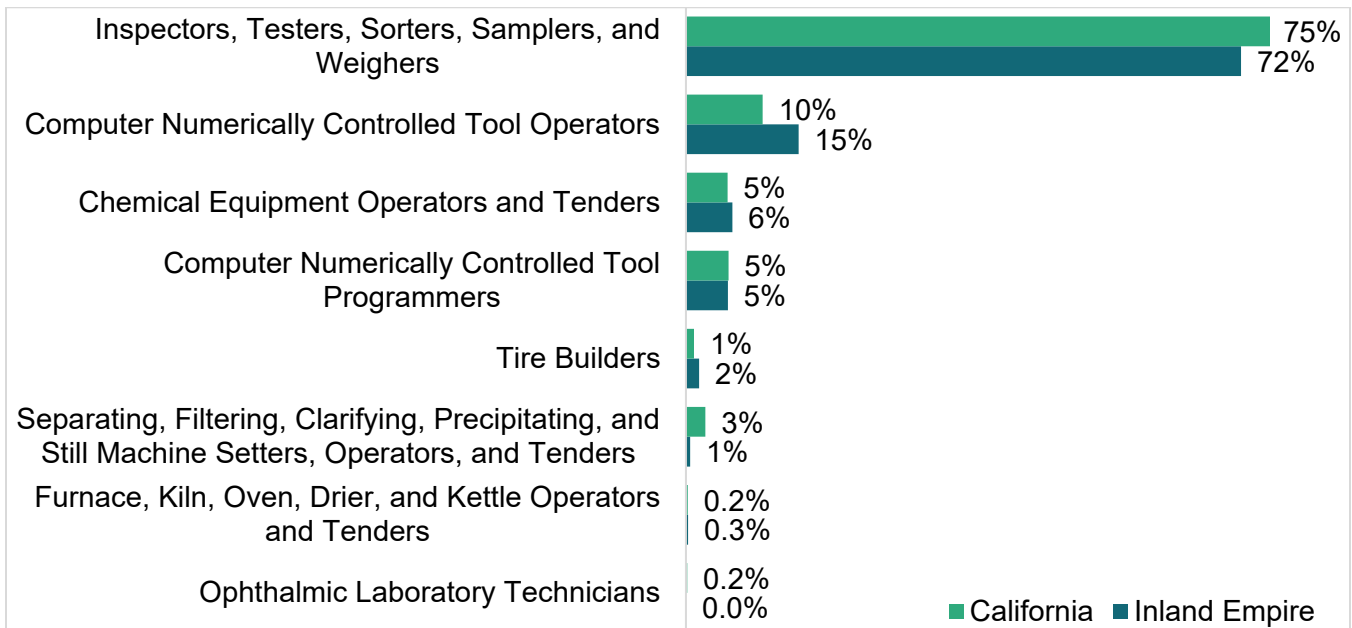
Occupation Title	2024 Jobs	2029 Jobs	2024-2029 % Change	Average Annual Openings	Median Hourly Earnings
Inspectors, Testers, Sorters, Samplers, and Weighers	5,960	6,035	1%	706	\$22.21
Computer Numerically Controlled Tool Operators	1,725	1,648	-4%	159	\$23.22
Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	502	534	6%	58	\$24.20
Chemical Equipment Operators and Tenders	388	393	1%	41	\$23.96
Computer Numerically Controlled Tool Programmers	269	281	4%	28	\$33.95
Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	64	65	2%	7	\$21.85
Ophthalmic Laboratory Technicians	49	57	16%	7	\$21.65
Tire Builders	16	25	55%	4	\$17.15
Total	8,973	9,037	1%	1,010	

Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

Over the last 24 months, October 2023 to September 2025, referred to as the “most recent period” going forward, 3,257 job ads were posted for the other production occupations occupational group in the Inland Empire, as compared to 32,471 job ads posted for the same occupations across California. In the previous period, October 2018 to September 2023, there were 8,940 job ads posted for this occupational group in the Inland Empire and 102,761 job ads posted in California.

Exhibit 2.1.2 displays the share of other production occupations job advertisements by occupation in the Inland Empire/Desert Region and California. Over 70% of the regional and statewide job ads were posted for inspectors, testers, sorters, samplers, and weighers. The scale of these occupational job advertisements may influence the skills most frequently requested by employers for this occupational group. When comparing the Inland Empire/Desert Region to California, the Inland Empire had a greater share of job ads for computer numerically controlled tool operators than California.

Exhibit 2.1.2: Share of Advertisements by Occupation for Other Production Occupations, Inland Empire/Desert Region and California, October 2023 – September 2025

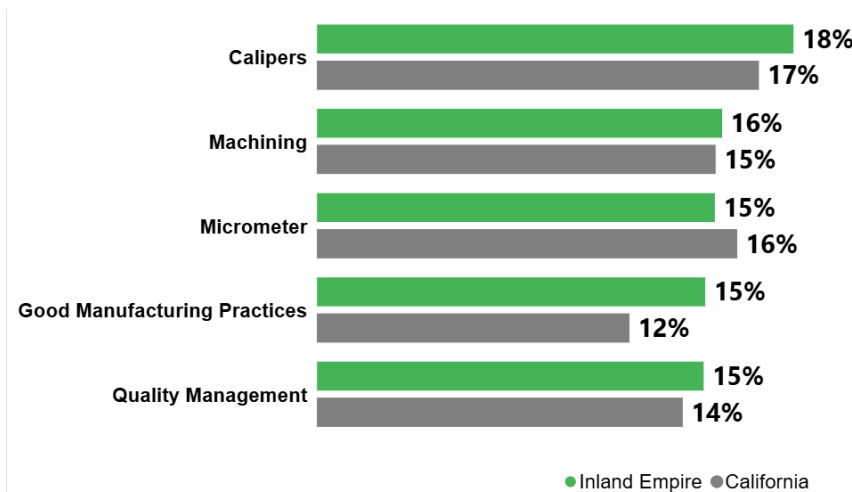


Source: Lightcast 2025.4 – Job Posting Analytics

Specialized Skills

Exhibit 2.1.3 displays the top specialized skills included in employer job advertisements for other production occupations in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the specialized skills employers find critical to employment.

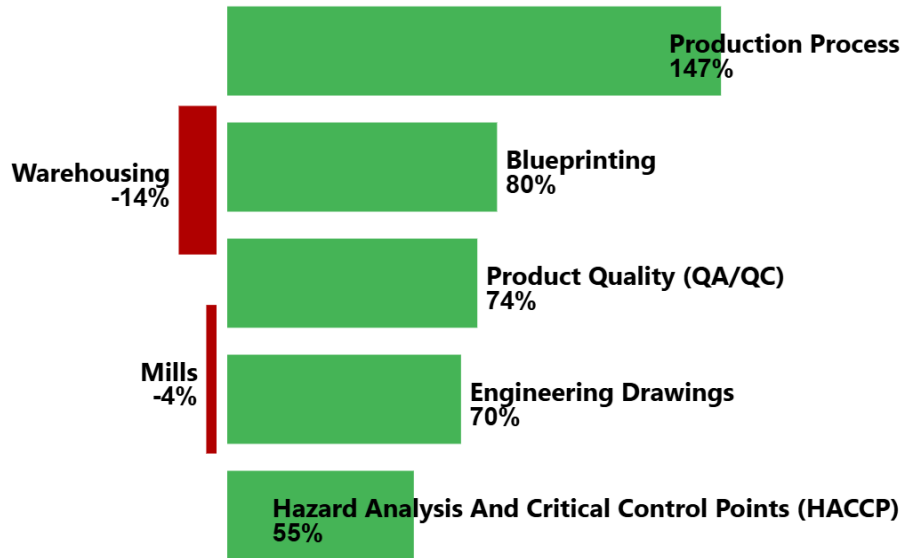
Exhibit 2.1.3: Top Specialized Skills from Employer Job Ads for Other Production Occupations, Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.1.4 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the other production occupations occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with production process skills has increased by 147% in prevalence since the previous period (2018-2023). Employers' desire for candidates with warehousing skills has decreased by 14% between the two periods in the Inland Empire.

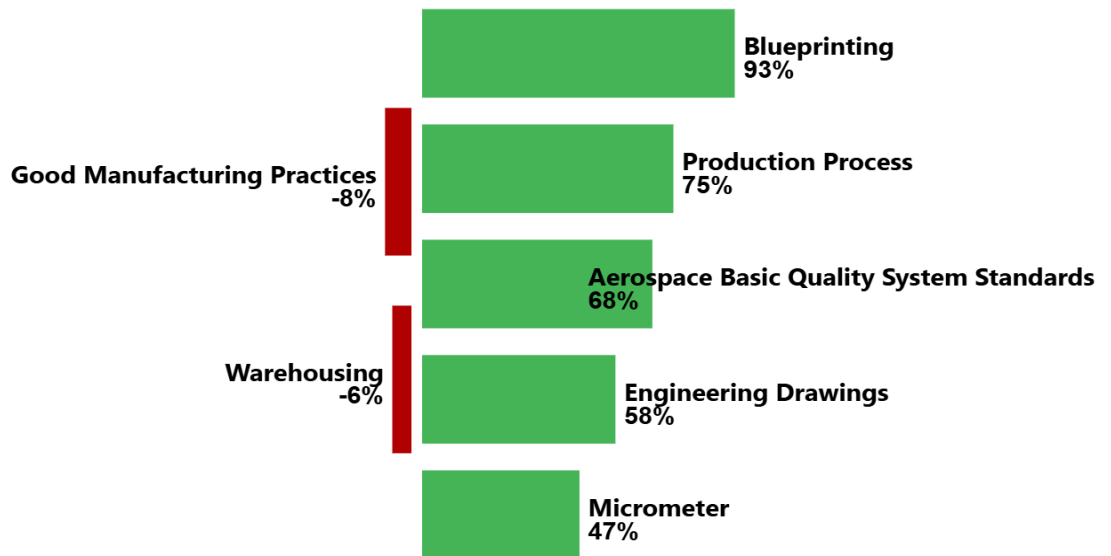
Exhibit 2.1.4: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Other Production Occupations in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.1.5 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the other production occupations occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with blueprinting has increased by over 90% in prevalence since the previous period (2018-2023). Employers' desire for candidates with good manufacturing practices skills has decreased by 8% between the two periods in California.

Exhibit 2.1.5: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Other Production Occupations in California

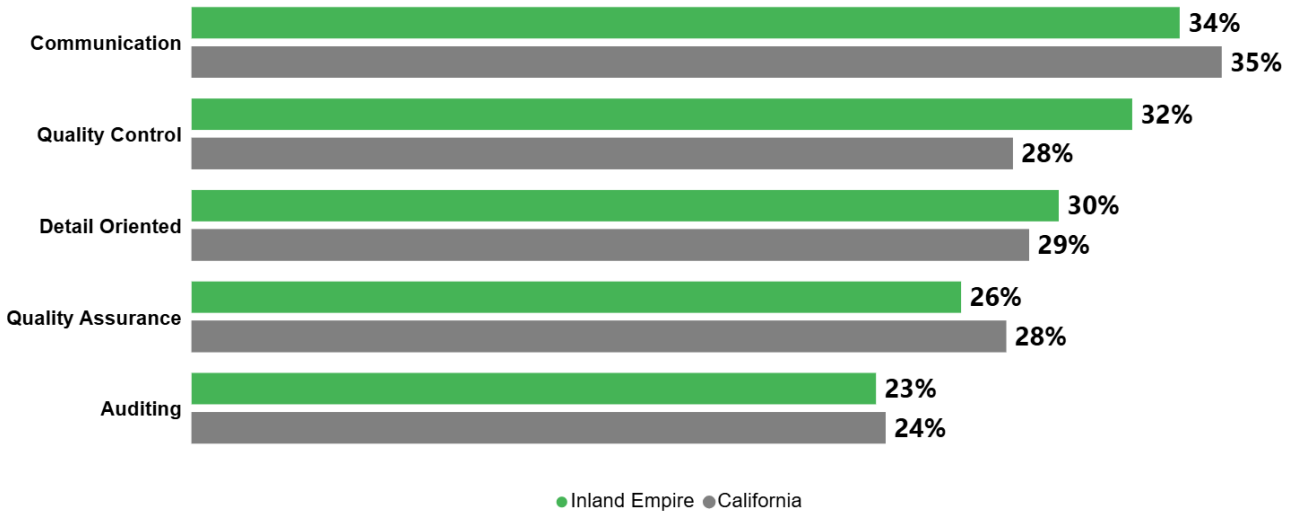


Source: Lightcast 2025.4 – Job Posting Analytics

Foundational Skills

Exhibit 2.1.6 displays the top foundational skills included in employer job advertisements for other production occupations in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the foundational skills employers find critical to employment. Communication was the top foundational skill for this occupational group across both regions.

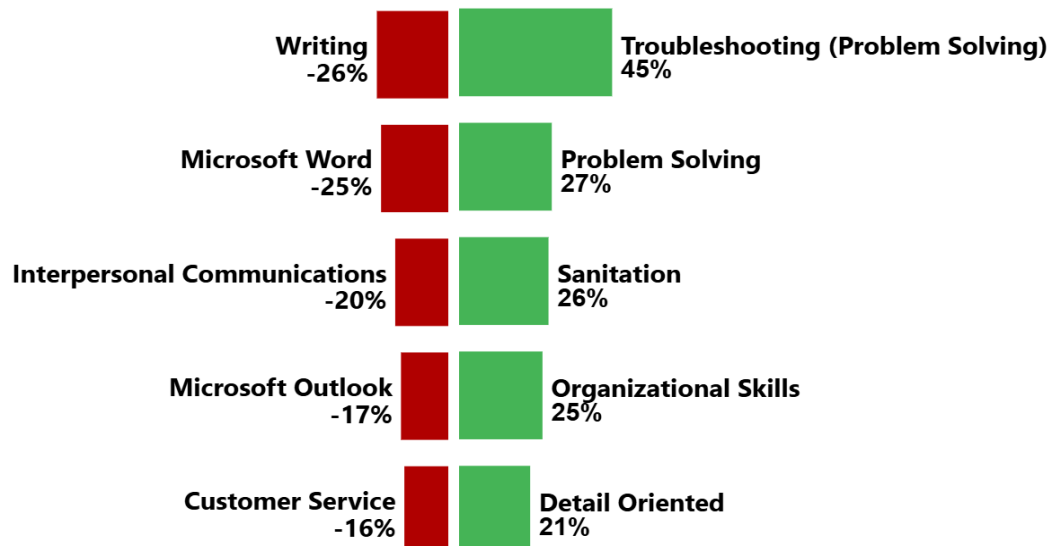
Exhibit 2.1.6: Top Foundational Skills from Employer Job Ads for Other Production Occupations, Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.1.7 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the other production occupations occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with troubleshooting (problem-solving) skills has increased by 45% since the previous period (2018-2023). Employers' desire for candidates with writing skills has decreased by 26% between the two periods in the Inland Empire.

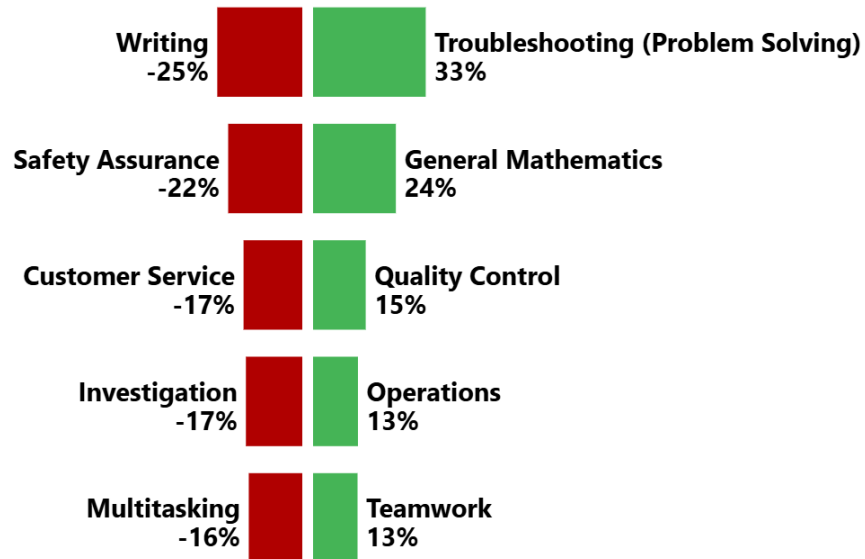
Exhibit 2.1.7: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Foundational Skills for Other Production Occupations in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.1.8 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the other production occupations occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with troubleshooting (problem-solving) skills has grown by 33% since the previous period (2018-2023). Employers' desire for candidates with writing skills has decreased by 25% between the two periods in California.

Exhibit 2.1.8: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Other Production Occupations in California



Source: Lightcast 2025.4 – Job Posting Analytics

Qualifications and Programs

Exhibit 2.1.9 displays the qualifications most frequently included in employer job advertisements for the other production occupations occupational group. A valid driver's license was the most frequently requested qualification in employer job advertisements, appearing in approximately 8% of regional job ads.

Exhibit 2.1.9: Top Qualifications Skills from Employer Job Ads for Other Production Occupations, Inland Empire/Desert Region and California, October 2023 – September 2025

Inland Empire/Desert Region		California	
Qualification	Share	Qualification	Share
Valid Driver's License	8%	Valid Driver's License	7%
Forklift Certification	2%	Security Clearance	2%
Security Clearance	1%	American Society for Quality (ASQ) Certified	2%
SQF (Safe Quality Food) Practitioner	1%	Forklift Certification	1%
Commercial Driver's License (CDL)	1%	Secret Clearance	1%

Source: Lightcast 2025.4 – Job Posting Analytics

The following community college programs prepare students for employment in the other production occupations occupational group.

- Viticulture, Enology, and Wine Business (0104.00)
- Food Processing and Related Technologies (0113.00)
- Chemical Technology (0954.00)
- Laboratory Science Technology (0955.00)
- Machining and Machine Tools (0956.30)
- Industrial Quality Control (0956.80)
- Optics (0961.00)

2.2: OTHER INSTALLATION, MAINTENANCE, AND REPAIR OCCUPATIONS

Exhibit 2.2.1 displays current and projected employment data for the other installation, maintenance, and repair occupations occupational group from 2024 to 2029. The other installation, maintenance, and repair occupations middle-skill occupational group contains seven occupations that had nearly 5,400 jobs in 2024. This occupational group is projected to grow by 9%, adding nearly 500 jobs to the region through 2029. Most occupations in this group offer high median wages and are projected to have over 500 annual job openings over the next five years.

Exhibit 2.2.1: Current and Projected Employment in the Other Installation, Maintenance, and Repair Occupations Occupational Group, Inland Empire/Desert Region, 2024-2029

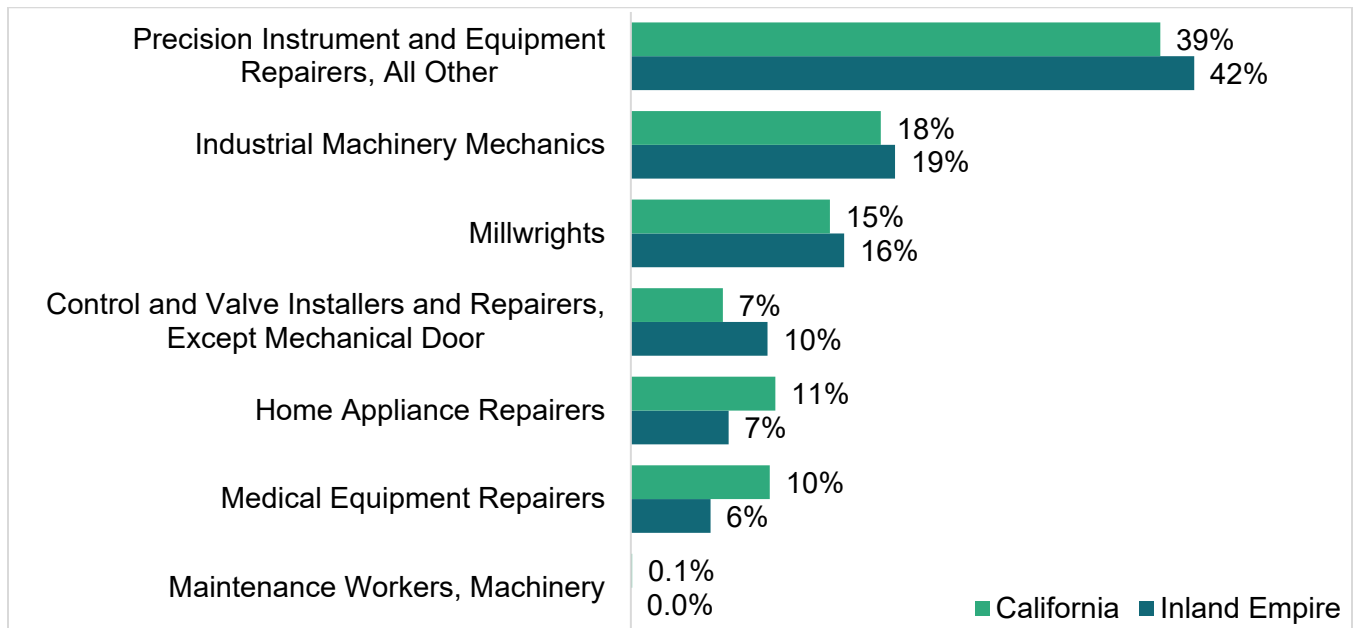
Occupation Title	2024 Jobs	2029 Jobs	2024-2029 % Change	Average Annual Openings	Median Hourly Earnings
Industrial Machinery Mechanics	3,005	3,344	11%	312	\$33.38
Control and Valve Installers and Repairers, Except Mechanical Door	530	548	3%	47	\$38.94
Medical Equipment Repairers	487	530	9%	51	\$32.36
Maintenance Workers, Machinery	465	507	9%	51	\$29.26
Home Appliance Repairers	460	477	4%	44	\$22.76
Millwrights	234	250	7%	23	\$32.31
Precision Instrument and Equipment Repairers, All Other	201	202	1%	17	\$40.91
Total	5,383	5,859	9%	546	

Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

Over the last 24 months, October 2023 to September 2025, referred to as the “most recent period” going forward, 1,359 job ads were posted for the other installation, maintenance, and repair occupations occupational group in the Inland Empire, as compared to 13,801 job ads posted for the same occupations across California. In the previous period, October 2018 to September 2023, there were 5,322 job ads posted for this occupational group in the Inland Empire and 53,706 job ads posted in California.

Exhibit 2.2.2 displays the share of other installation, maintenance, and repair occupations job advertisements by occupation in the Inland Empire/Desert Region and California. The most in-demand occupation in the other installation, maintenance, and repair occupations occupational group is precision instrument and equipment repairers, all other, accounting for over 40% of regional job advertisements.

Exhibit 2.2.2: Share of Advertisements by Occupation for Other Installation, Maintenance, and Repair Occupations, Inland Empire/Desert Region and California, October 2023 – September 2025

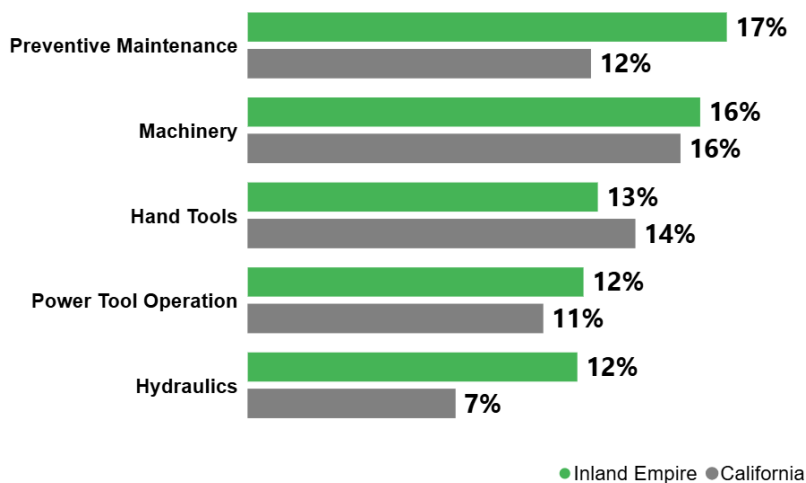


Source: Lightcast 2025.4 – Job Posting Analytics

Specialized Skills

Exhibit 2.2.3 displays the top specialized skills included in employer job advertisements for other installation, maintenance, and repair occupations in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the specialized skills employers find critical to employment.

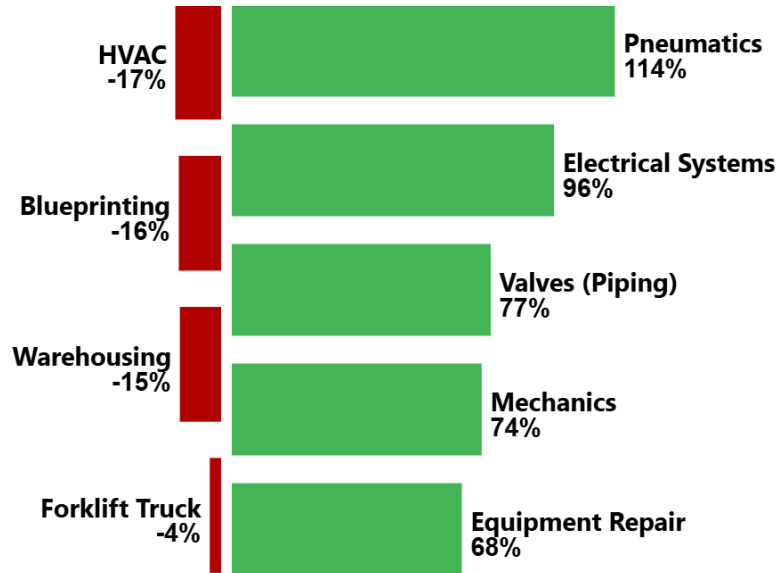
Exhibit 2.2.3: Top Specialized Skills from Employer Job Ads for Other Installation, Maintenance, and Repair Occupations, Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.2.4 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the other installation, maintenance, and repair occupations occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with pneumatics skills has increased by 114% since the previous period (2018-2023). Employers' desire for candidates with HVAC skills has decreased by 17% between the two periods in the Inland Empire.

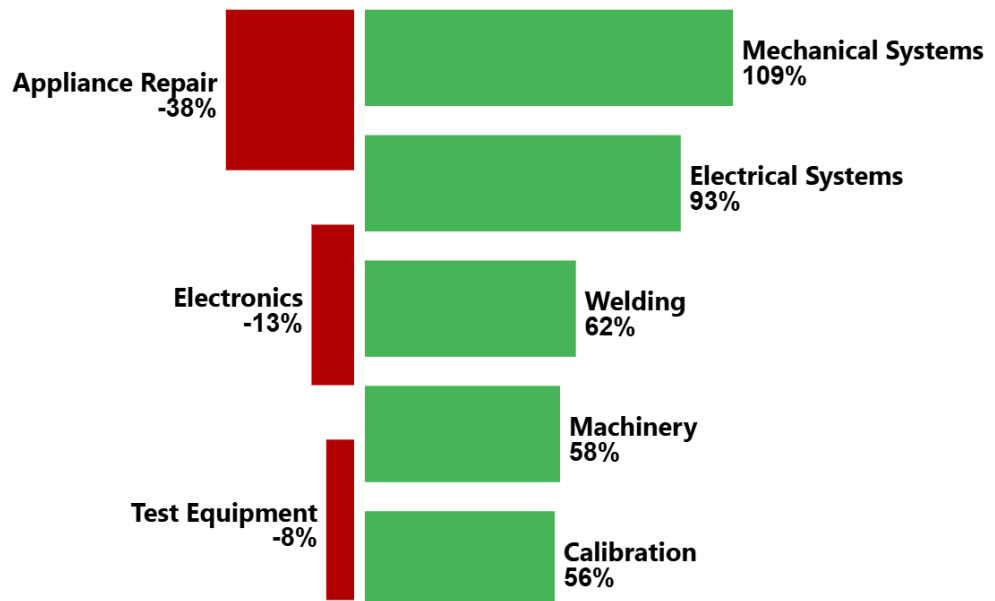
Exhibit 2.2.4: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Other Installation, Maintenance, and Repair Occupations in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.2.5 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the other installation, maintenance, and repair occupations occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with mechanical systems experience has increased by over 100% compared to the previous period (2018-2023). Employers' desire for candidates with appliance repair skills has decreased by 38% between the two periods in California.

Exhibit 2.2.5: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Other Installation, Maintenance, and Repair Occupations in California

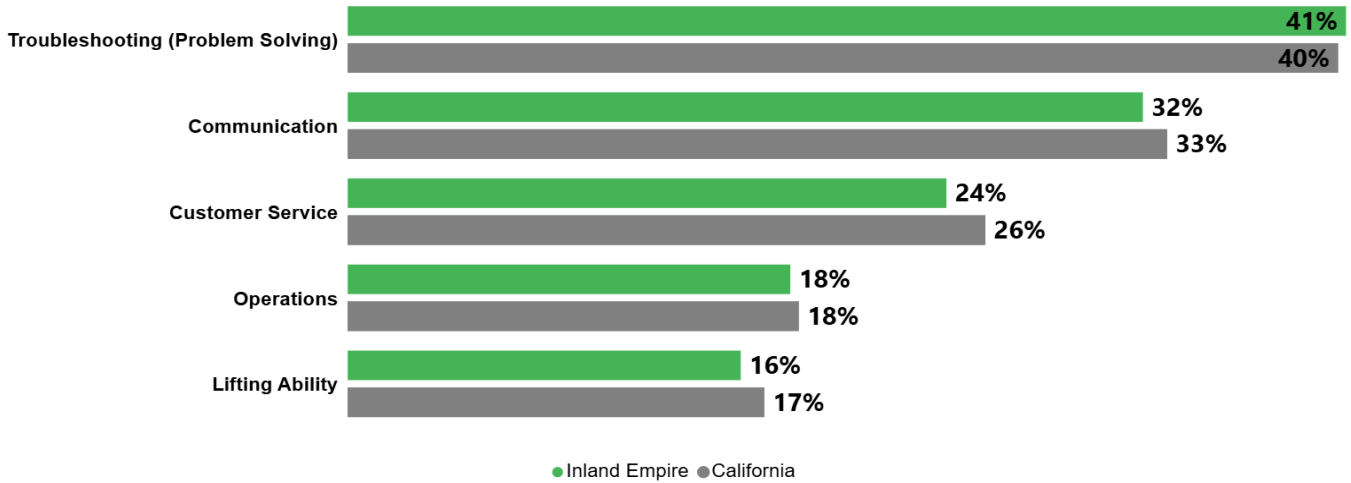


Source: Lightcast 2025.4 – Job Posting Analytics

Foundational Skills

Exhibit 2.2.6 displays the top foundational skills included in employer job advertisements for other installation, maintenance, and repair occupations in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the foundational skills employers find critical to employment. Troubleshooting (problem-solving) was the top foundational skill for this occupational group in the Inland Empire/Desert Region, followed by communication.

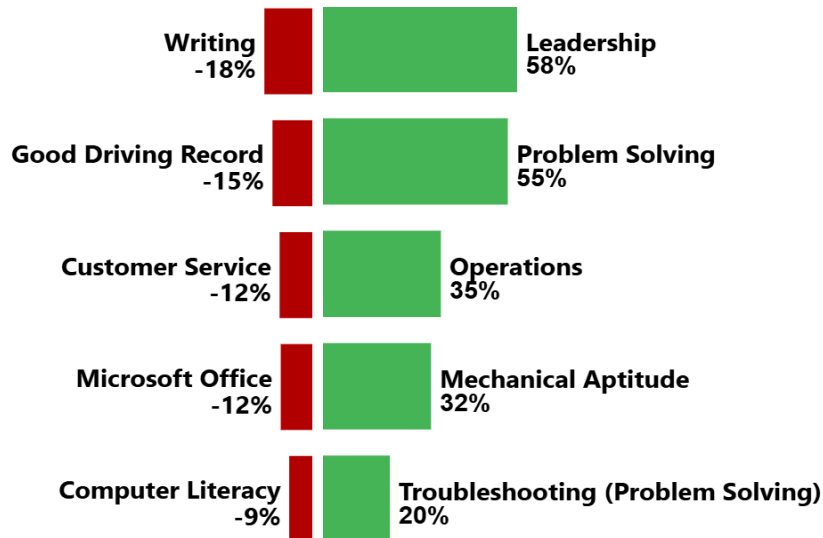
Exhibit 2.2.6: Top Foundational Skills from Employer Job Ads for Other Installation, Maintenance, and Repair Occupations, Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.2.7 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the other installation, maintenance, and repair occupations occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with leadership and problem-solving skills has increased by more than 50% since the previous period (2018-2023). Employers' desire for candidates with writing skills has decreased by 18% between the two periods in the Inland Empire.

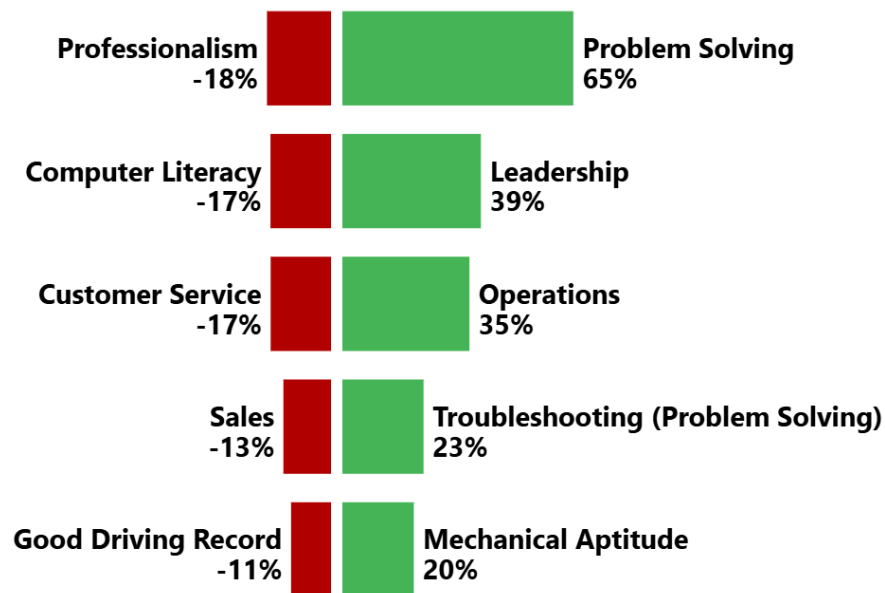
Exhibit 2.2.7: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Other Installation, Maintenance, and Repair Occupations in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.2.8 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the other installation, maintenance, and repair occupations occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with problem-solving skills has increased by 65% compared to the previous period (2018-2023). Employers' desire for candidates with professional skills has decreased by 18% between the two periods in California.

Exhibit 2.2.8: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Other Installation, Maintenance, and Repair Occupations in California



Source: Lightcast 2025.4 – Job Posting Analytics

Qualifications and Programs

Exhibit 2.2.9 displays the qualifications most frequently included in employer job advertisements for other installation, maintenance, and repair occupations. A valid driver's license was the most frequently requested qualification in employer job advertisements, appearing in over one-third of job ads. While the overall share of other certifications remains low, the EPA 608 certification was included in more than 300 regional job advertisements in the recent period, demonstrating demand for this certification.

Exhibit 2.2.9: Top Qualifications Skills from Employer Job Ads for Other Installation, Maintenance, and Repair Occupations, Inland Empire/Desert Region and California, October 2023 – September 2025

Inland Empire/Desert Region		California	
Qualification	Share	Qualification	Share
Valid Driver's License	27%	Valid Driver's License	24%
Certified Biomedical Equipment Technician (CBET)	2%	Forklift Certification	4%
Forklift Certification	1%	CDL Class A License	2%
Automotive Service Excellence (ASE) Certification	1%	EPA 608 Technician Certification	2%
EPA 608 Technician Certification	1%	Security Clearance	2%

Source: Lightcast 2025.4 – Job Posting Analytics

The following community college programs prepare students for employment in the other installation, maintenance, and repair occupations occupational group.

- Biotechnology and Biomedical Technology (0430.00)
- Biomedical Instrumentation (0934.60)
- Electron Microscopy (0934.70)
- Appliance Repair (0935.10)
- Instrumentation Technology (0943.00)
- Industrial Systems Technology and Maintenance (0945.00)
- Energy Systems Technology (0946.10)
- Diesel Technology (0947.00)
- Heavy Equipment Maintenance (0947.20)

2.3: METAL WORKERS AND PLASTIC WORKERS

Exhibit 2.3.1 displays current and projected employment data for the metal workers and plastic workers occupational group from 2024 to 2029. The metal workers and plastic workers middle-skill occupational group contains four occupations that had over 4,300 jobs in 2024. This occupational group is projected to shed 13 jobs through 2029. However, this occupational group is projected to have over 400 annual job openings over the next five years.

Exhibit 2.3.1: Current and Projected Employment for the Metal Workers and Plastic Workers Occupational Group, Inland Empire/Desert Region, 2024-2029

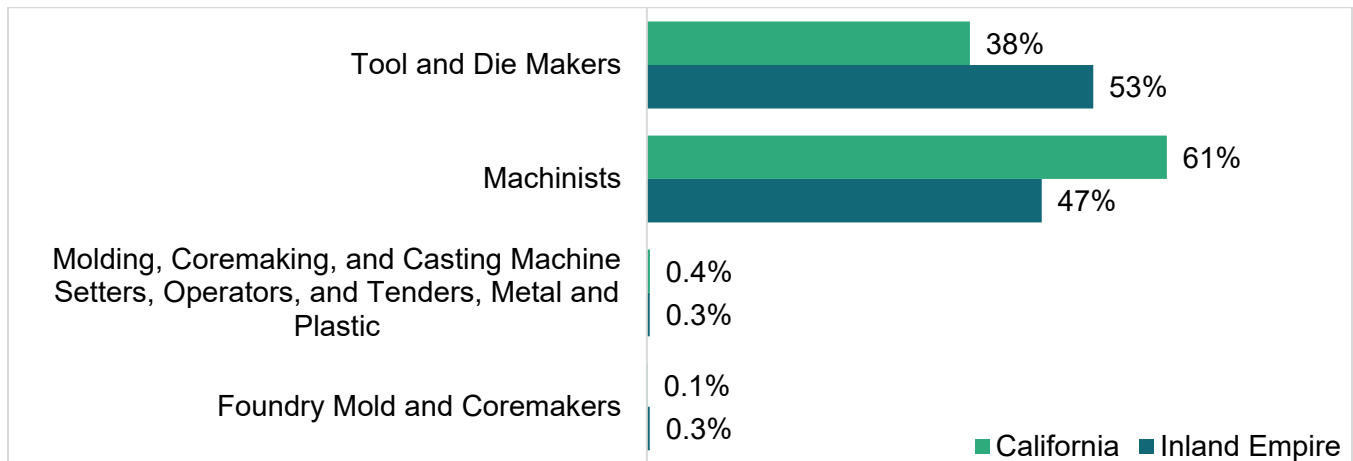
Occupation Title	2024 Jobs	2029 Jobs	2024-2029 % Change	Average Annual Openings	Median Hourly Earnings
Machinists	2,185	2,201	1%	224	\$23.59
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	1,865	1,848	-1%	195	\$19.97
Tool and Die Makers	194	193	-0%	20	\$33.34
Foundry Mold and Coremakers	74	61	-17%	7	\$19.15
Total	4,318	4,304	-0%	445	

Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

Over the last 24 months, October 2023 to September 2025, referred to as the “most recent period” going forward, 592 job ads were posted for the metal workers and plastic workers occupational group in the Inland Empire, as compared to 7,703 job ads posted for the same occupations across California. In the previous period, October 2018 to September 2023, there were 1,720 job ads posted for this occupational group in the Inland Empire and 21,806 job ads posted in California.

Exhibit 2.3.2 displays the share of metal workers and plastic workers’ job advertisements by occupation in the Inland Empire/Desert Region and California. Nearly 100% of job advertisements for the metal workers and plastic workers occupational group were posted for tool and die makers and machinists, indicating that skills data presented will identify skills most important to these occupations. The Inland Empire had a greater share of job advertisements for tool and die makers than California, at 53% of ads, while California had a greater share of job advertisements for machinists, at 61% of statewide job ads.

Exhibit 2.3.2: Share of Advertisements by Occupation for the Metal Workers and Plastic Workers Occupational Group, Inland Empire/Desert Region and California, October 2023 – September 2025

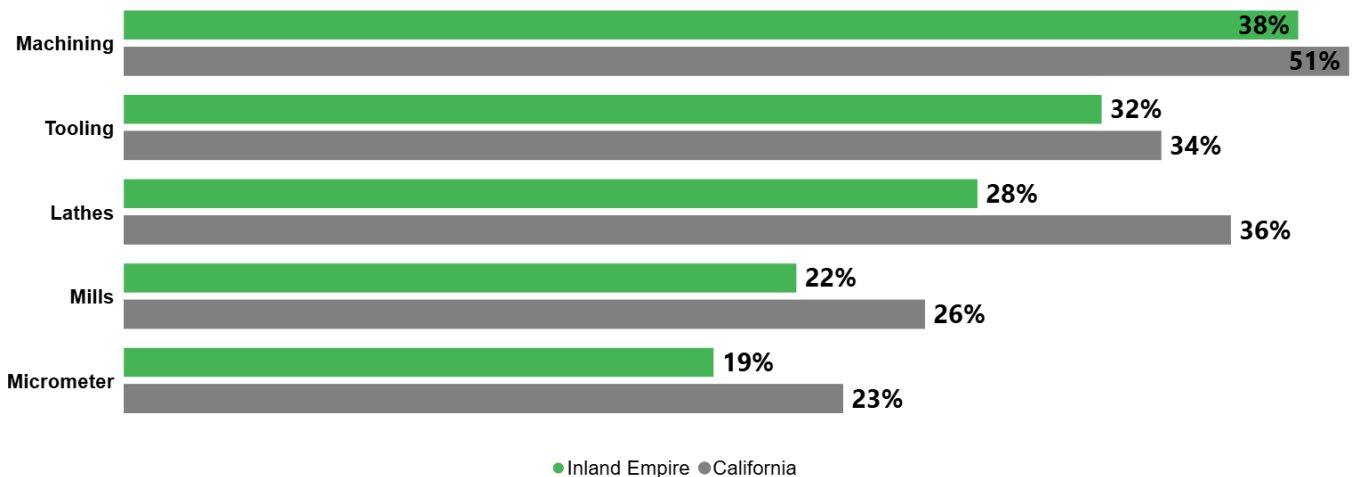


Source: Lightcast 2025.4 – Job Posting Analytics

Specialized Skills

Exhibit 2.3.3 displays the top specialized skills included in employer job advertisements for the metal workers and plastic workers occupational group in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the specialized skills employers find critical to employment.

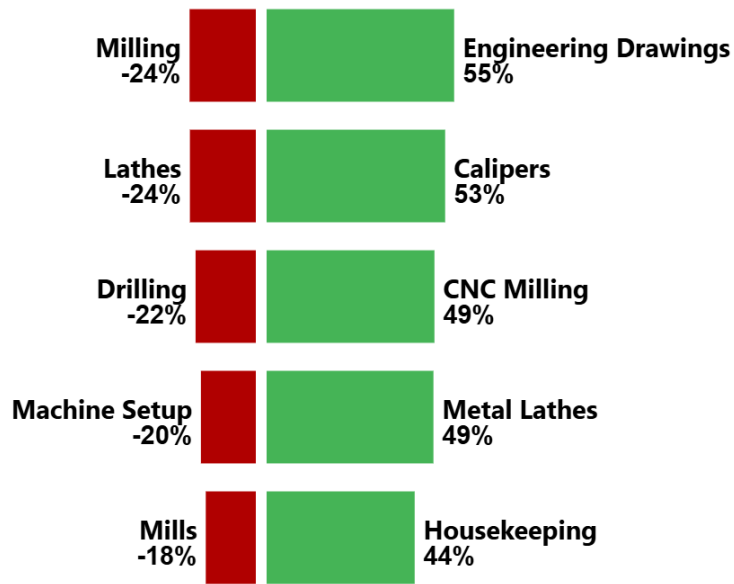
Exhibit 2.3.3: Top Specialized Skills from Employer Job Ads for the Metal Workers and Plastic Workers Occupational Group, Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.3.4 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the metal workers and plastic workers occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with engineering drawing and caliper skills has increased in prevalence by over 50% since the previous period (2018-2023). Employers' desire for candidates with milling and lathes skills has decreased by 24% between the two periods in the Inland Empire.

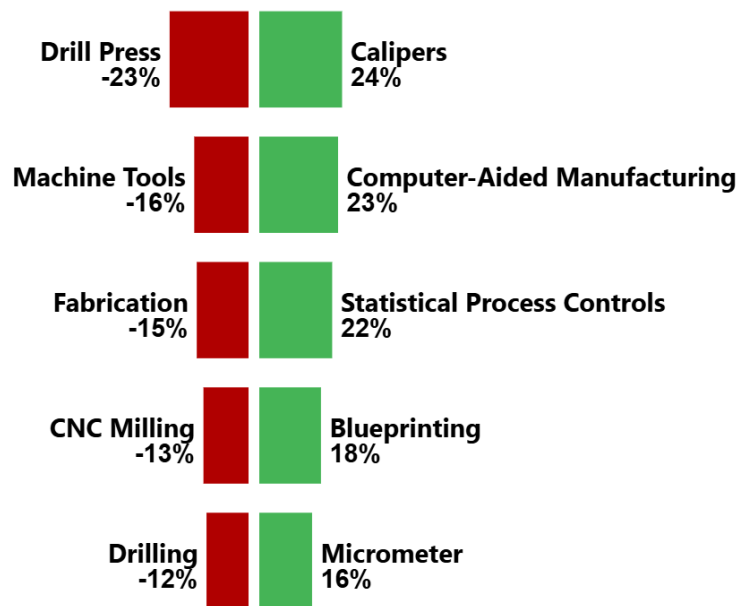
Exhibit 2.3.4: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for the Metal Workers and Plastic Workers Occupational Group in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.3.5 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the metal workers and plastic workers occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with calipers, computer-aided manufacturing, and statistical process control skills has increased by over 20% compared to the previous period (2018-2023). In California, employers' desire for candidates with drill press skills has decreased by 23% between the two periods.

Exhibit 2.3.5: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for the Metal Workers and Plastic Workers Occupational Group in California

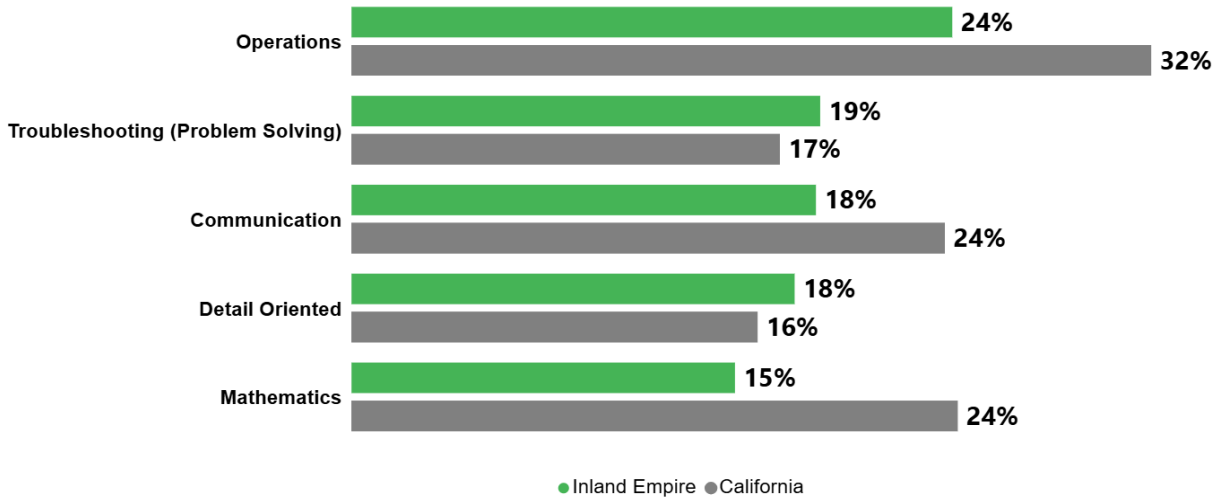


Source: Lightcast 2025.4 – Job Posting Analytics

Foundational Skills

Exhibit 2.3.6 displays the top foundational skills included in employer job advertisements for the metal workers and plastic workers occupational group in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the foundational skills employers find critical to employment. Operations skills were the top foundational skills for this occupational group across both regions.

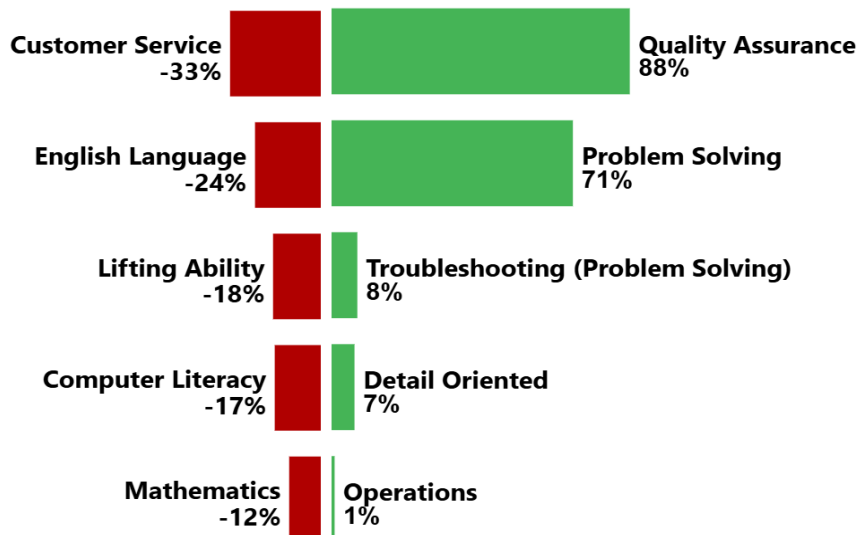
Exhibit 2.3.6: Top Foundational Skills from Employer Job Ads for the Metal Workers and Plastic Workers Occupational Group, Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.3.7 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the metal workers and plastic workers occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with quality assurance skills has increased by 88% since the previous period (2018-2023). In the Inland Empire, employers' desire for candidates with customer service skills decreased by 33% between the two periods.

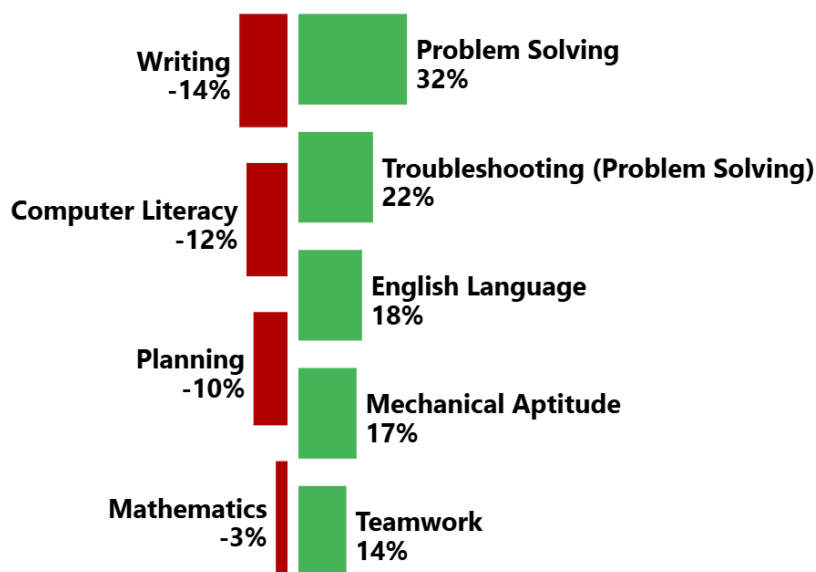
Exhibit 2.3.7: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for the Metal Workers and Plastic Workers Occupational Group in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.3.8 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the metal workers and plastic workers occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with time management and problem-solving skills has grown by 32% since the previous period (2018-2023). Employers' desire for candidates with sales skills has decreased by 14% between the two periods in California.

Exhibit 2.3.8: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for the Metal Workers and Plastic Workers Occupational Group in California



Source: Lightcast 2025.4 – Job Posting Analytics

Qualifications and Programs

Exhibit 2.3.9 displays the qualifications most frequently included in employer job advertisements for the metal workers and plastic workers occupational group. A Basic Life Support (BLS) certification was the most frequently requested qualification in employer job advertisements, appearing in approximately 11% of regional job ads.

Exhibit 2.3.9: Top Qualifications Skills from Employer Job Ads for the Metal Workers and Plastic Workers Occupational Group, Inland Empire/Desert Region and California, October 2023 – September 2025

Inland Empire/Desert Region		California	
Qualification	Share	Qualification	Share
Basic Life Support (BLS) Certification	11%	Basic Life Support (BLS) Certification	6%
Valid Driver's License	2%	Security Clearance	4%
Security Clearance	2%	Valid Driver's License	2%
Forklift Certification	2%	Forklift Certification	1%

Source: Lightcast 2025.4 – Job Posting Analytics

The following community college program prepares students for employment in the metal workers and plastic workers occupational group.

- Machining and Machine Tools (0956.30)

2.4: DRAFTERS, ENGINEERING TECHNICIANS, AND MAPPING TECHNICIANS

Exhibit 2.4.1 displays current and projected employment data for the drafters, engineering technicians, and mapping technicians occupational group from 2024 to 2029. The drafters, engineering technicians, and mapping technicians middle-skill occupational group contains eight occupations that had nearly 2,400 jobs in 2024. This occupational group is projected to grow by 2%, adding 49 jobs to the region through 2029. This occupational group offers good median wages and is projected to have over 200 annual job openings over the next five years.

Exhibit 2.4.1: Current and Projected Employment for the Drafters, Engineering Technicians, and Mapping Technicians Occupational Group, Inland Empire/Desert Region, 2024-2029

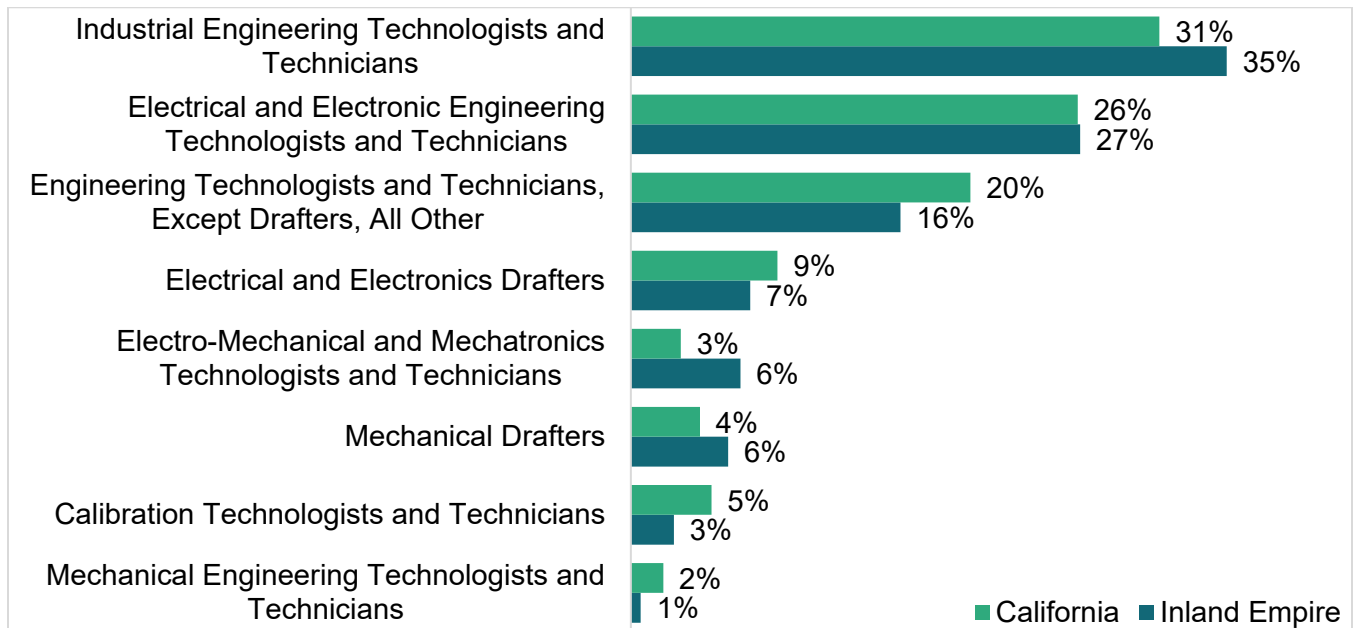
Occupation Title	2024 Jobs	2029 Jobs	2024-2029 % Change	Average Annual Openings	Median Hourly Earnings
Electrical and Electronic Engineering Technologists and Technicians	671	687	2%	65	\$39.06
Engineering Technologists and Technicians, Except Drafters, All Other	473	485	2%	43	\$39.21
Electrical and Electronics Drafters	374	380	2%	34	\$33.40
Mechanical Drafters	368	360	-2%	32	\$33.18
Industrial Engineering Technologists and Technicians	212	223	5%	21	\$35.55
Mechanical Engineering Technologists and Technicians	157	160	2%	14	\$28.28
Calibration Technologists and Technicians	96	102	7%	10	\$30.76
Electro-Mechanical and Mechatronics Technologists and Technicians	43	45	5%	4	\$35.21
Total	2,394	2,442	2%	223	

Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

Over the last 24 months, October 2023 to September 2025, referred to as the “most recent period” going forward, 1,376 job ads were posted for the drafters, engineering technicians, and mapping technicians occupational group in the Inland Empire, as compared to 19,886 job ads posted for the same occupations across California. In the previous period, October 2018 to September 2023, there were 4,259 job ads posted for this occupational group in the Inland Empire and 68,894 job ads posted in California.

Exhibit 2.4.2 displays the share of drafters, engineering technicians, and mapping technicians job advertisements by occupation in the Inland Empire/Desert Region and California. Approximately 62% of the regional job ads were posted for industrial engineering technologists and technicians and electrical and electronic engineering technologists and technicians. The scale of these occupational job advertisements may influence the skills most frequently requested by employers for this occupational group.

Exhibit 2.4.2: Share of Advertisements by Occupation for Drafters, Engineering Technicians, and Mapping Technicians, Inland Empire/Desert Region and California, October 2023 – September 2025

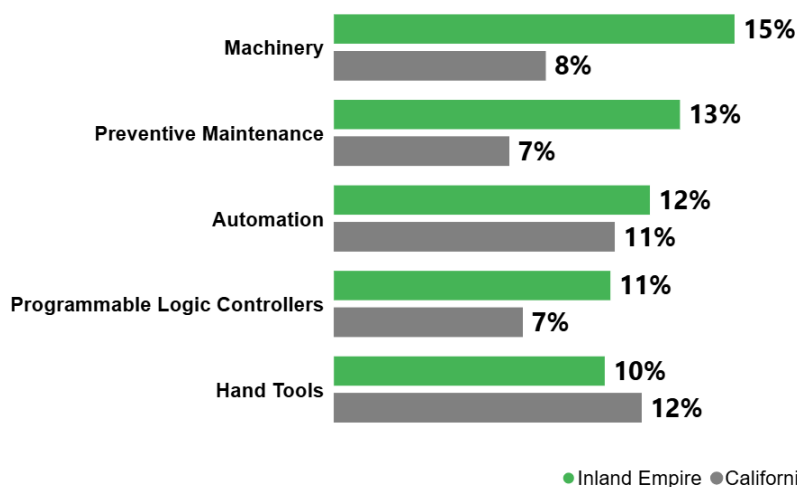


Source: Lightcast 2025.4 – Job Posting Analytics

Specialized Skills

Exhibit 2.4.3 displays the top specialized skills in employer job advertisements for the drafters, engineering technicians, and mapping technicians occupational group in the Inland Empire/Desert Region, along with their share of job ads in California. The top skills may provide insight into the specialized skills employers find critical to employment.

Exhibit 2.4.3: Top Specialized Skills from Employer Job Ads Drafters, Engineering Technicians, and Mapping Technicians, Inland Empire/Desert Region and California, October 2023 – September 2025

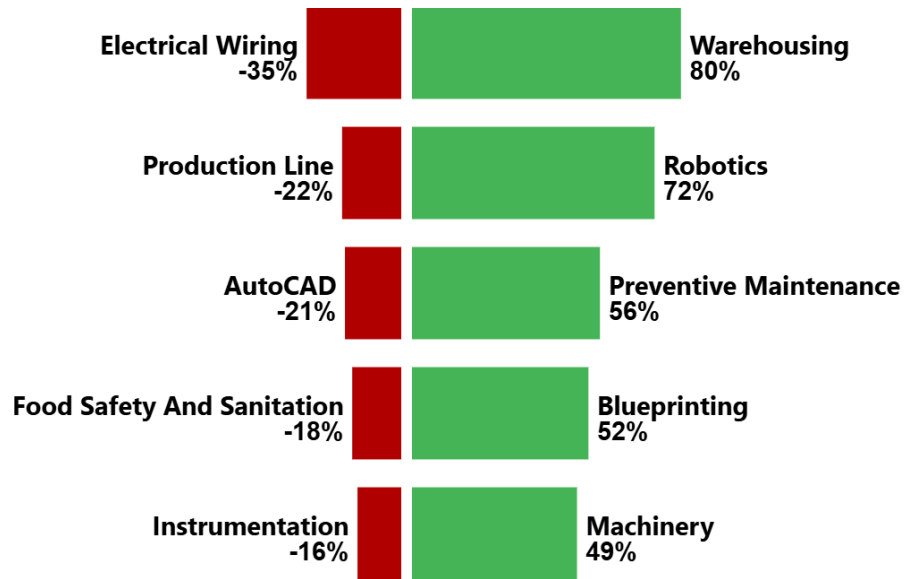


Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.4.4 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the drafters, engineering technicians, and mapping technicians occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with warehousing and robotics skills has increased in

prevalence by over 70% since the previous period (2018-2023). Employers' desire for candidates with electrical wiring skills has decreased by 35% between the two periods in the Inland Empire.

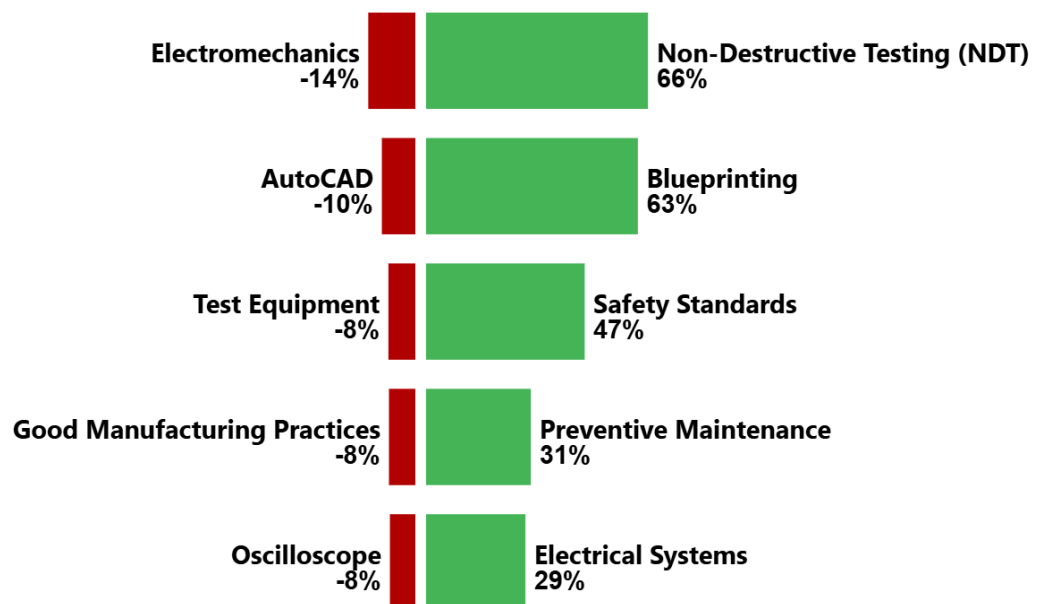
Exhibit 2.4.4: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Drafters, Engineering Technicians, and Mapping Technicians in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.4.5 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the drafters, engineering technicians, and mapping technicians occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with non-destructive testing (NDT) skills has increased by 66% since the previous period (2018-2023). Employers' desire for candidates with electromechanical skills has decreased by 14% between the two periods in California.

Exhibit 2.4.5: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Drafters, Engineering Technicians, and Mapping Technicians in California

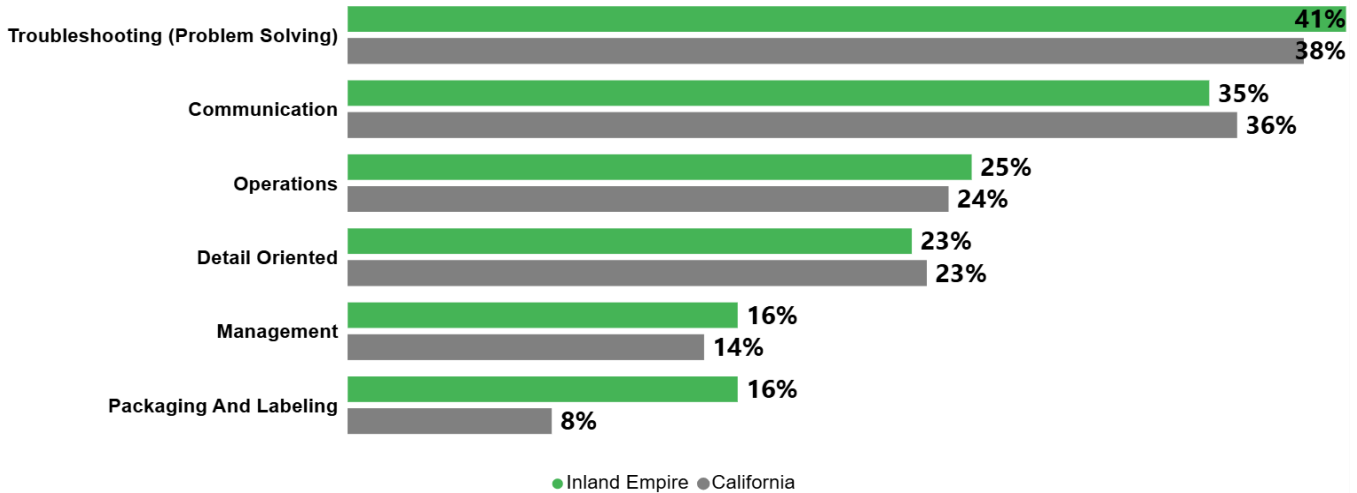


Source: Lightcast 2025.4 – Job Posting Analytics

Foundational Skills

Exhibit 2.4.6 displays the top foundational skills included in employer job advertisements for drafters, engineering technicians, and mapping technicians in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the foundational skills employers find critical to employment. Troubleshooting (problem-solving) was the top foundational skill for this occupational group across both regions.

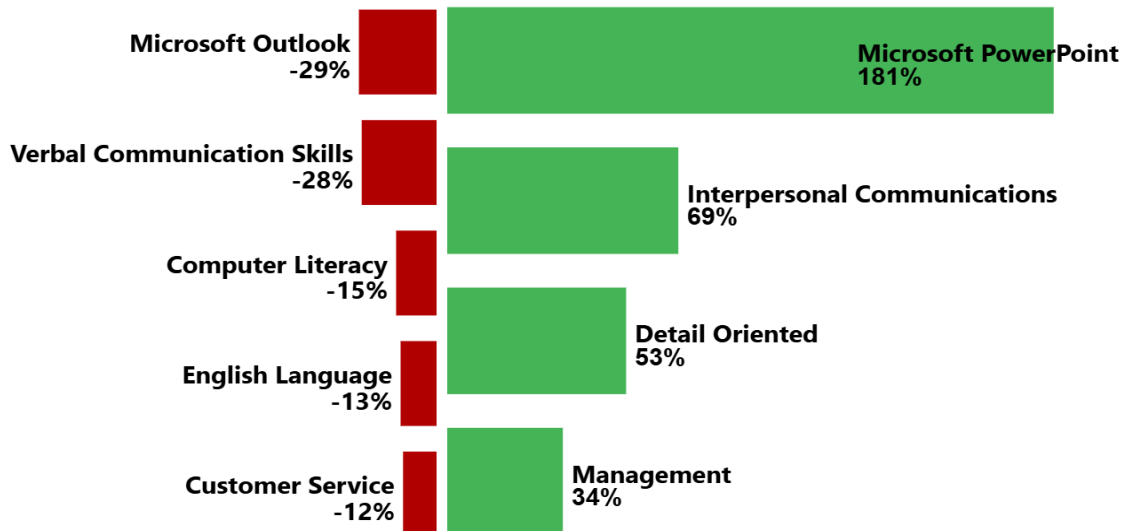
Exhibit 2.4.6: Top Foundational Skills from Employer Job Ads for Drafters, Engineering Technicians, and Mapping Technicians, Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.4.7 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the drafters, engineering technicians, and mapping technicians occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with Microsoft PowerPoint skills has increased in prevalence by 181% since the previous period (2018-2023). However, employers' desire for candidates with Microsoft Outlook skills has decreased by 29% between the two periods in the Inland Empire.

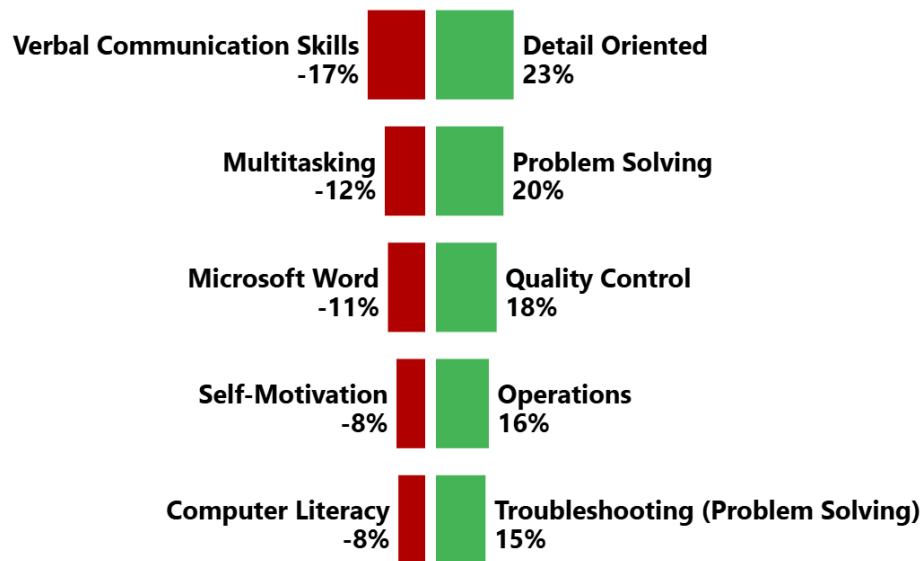
Exhibit 2.4.7: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Drafters, Engineering Technicians, and Mapping Technicians in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.4.8 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the drafters, engineering technicians, and mapping technicians occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates who are detail-oriented has increased in prevalence by 23% since the previous period (2018-2023). Employers' desire for candidates with verbal communication skills has decreased by 17% between the two periods in California.

Exhibit 2.4.8: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Drafters, Engineering Technicians, and Mapping Technicians in California



Source: Lightcast 2025.4 – Job Posting Analytics

Qualifications and Programs

Exhibit 2.4.9 displays the qualifications most frequently included in employer job advertisements for drafters, engineering technicians, and mapping technicians. A valid driver's license was the most frequently requested qualification in employer job advertisements, appearing in 12% of job ads.

Exhibit 2.4.9: Top Qualifications Skills from Employer Job Ads Drafters, Engineering Technicians, and Mapping Technicians, Inland Empire/Desert Region and California, October 2023 – September 2025

Inland Empire/Desert Region		California	
Qualification	Share	Qualification	Share
Valid Driver's License	12%	Valid Driver's License	11%
Certified Industrial Refrigeration Operator (CIRO) Certification	2%	Security Clearance	4%
Secret Clearance	2%	Secret Clearance	3%
Forklift Certification	2%	ASNT Non-Destructive Tester	1%
CDL Class C License	1%	Certified Welding Inspector	1%

Source: Lightcast 2025.4 – Job Posting Analytics

The following community college programs prepare students for employment in the drafters, engineering technicians, and mapping technicians occupational group.

- Architecture and Architectural Technology (0201.00)

- Biotechnology and Biomedical Technology (0430.00)
- Information Technology, General (0701.00)
- Computer Information Systems (0702.00)
- Computer Software Development (0707.00)
- Engineering Technology, General (requires Trigonometry) (0924.00)
- Electronics and Electric Technology (0934.00)
- Computer Electronics (0934.10)
- Industrial Electronics (0934.20)
- Telecommunications Technology (0934.30)
- Biomedical Instrumentation (0934.60)
- Electron Microscopy (0934.70)
- Laser and Optical Technology (0934.80)
- Electro-Mechanical Technology (0935.00)
- Instrumentation Technology (0943.00)
- Environmental Control Technology (HVAC) (0946.00)
- Energy Systems Technology (0946.10)
- Automotive Technology (0948.00)
- Aeronautical and Aviation Technology (0950.00)
- Aircraft Electronics (Avionics) (0950.40)
- Drafting Technology (0953.00)
- Electrical, Electronic, and Electro-Mechanical Drafting (0953.30)
- Mechanical Drafting (0953.40)
- Plastics and Composites (0954.20)
- Manufacturing and Industrial Technology (0956.00)
- Welding Technology (0956.50)
- Industrial and Occupational Safety and Health (0956.70)
- Marine Technology (0959.00)
- Other Engineering and Related Industrial Technologies (0999.00)
- Commercial Music (1005.00)

2.5: ELECTRICAL AND ELECTRONIC EQUIPMENT MECHANICS, INSTALLERS, AND REPAIRERS

Exhibit 2.5.1 displays current and projected employment data for the electrical and electronic equipment mechanics, installers, and repairers occupational group from 2024 to 2029. The electrical and electronic equipment mechanics, installers, and repairers middle-skill occupational group contains three occupations that had nearly 1,800 jobs in 2024. This occupational group is projected to contract by 1%, shedding 14 jobs in the region through 2029. Despite the job loss, there are 169 annual job openings projected for this occupational group between 2024 and 2029.

Exhibit 2.5.1: Current and Projected Employment for the Electrical and Electronic Equipment Mechanics, Installers, and Repairers Occupational Group, Inland Empire/Desert Region, 2024-2029

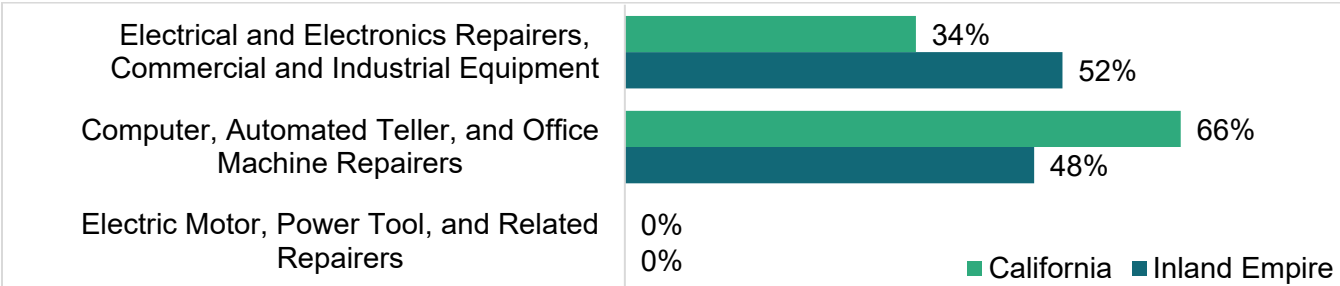
Occupation Title	2024 Jobs	2029 Jobs	2024-2029 % Change	Average Annual Openings	Median Hourly Earnings
Computer, Automated Teller, and Office Machine Repairers	821	765	-7%	79	\$20.84
Electrical and Electronics Repairers, Commercial and Industrial Equipment	711	745	5%	67	\$37.03
Electric Motor, Power Tool, and Related Repairers	224	232	3%	23	\$30.18
Total	1,757	1,743	-1%	169	

Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

Over the last 24 months, October 2023 to September 2025, referred to as the “most recent period” going forward, 745 job ads were posted for the electrical and electronic equipment mechanics, installers, and repairers occupational group in the Inland Empire, as compared to 8,742 job ads posted for the same occupations across California. In the previous period, October 2018 to September 2023, there were 2,397 job ads posted for this occupational group in the Inland Empire and 31,073 job ads posted in California.

Exhibit 2.5.2 displays the share of electrical and electronic equipment mechanics, installers, and repairers occupational group job advertisements by occupation in the Inland Empire/Desert Region and California. There were no job advertisements posted for electric motor, power tool, and related repairers over the most recent period in both regions. While there was a near-even distribution of ads posted for electrical and electronics repairers, commercial and industrial equipment, and computer, automated teller, and office machine repairers in the region, approximately two-thirds of statewide advertisements were posted for computer, automated teller, and office machine repairers.

Exhibit 2.5.2: Share of Advertisements by Occupation for Electrical and Electronic Equipment Mechanics, Installers, and Repairers Inland Empire/Desert Region and California, October 2023 – September 2025

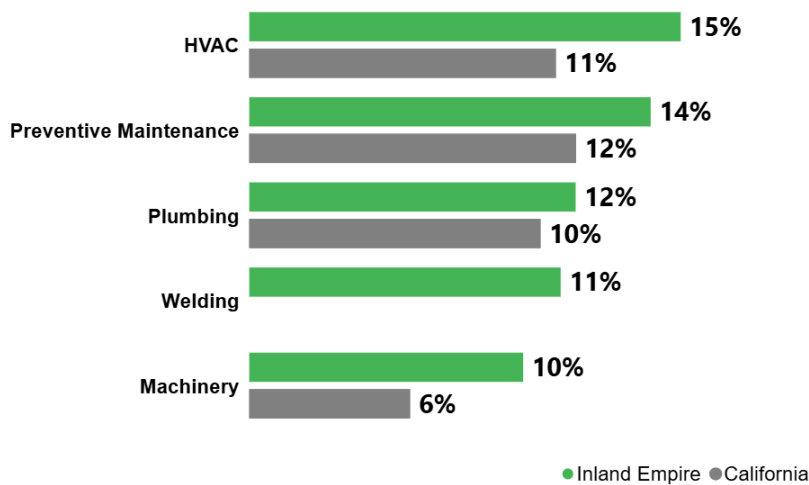


Source: Lightcast 2025.4 – Job Posting Analytics

Specialized Skills

Exhibit 2.5.3 displays the top specialized skills included in employer job advertisements for electrical and electronic equipment mechanics, installers, and repairers in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the specialized skills employers find critical to employment.

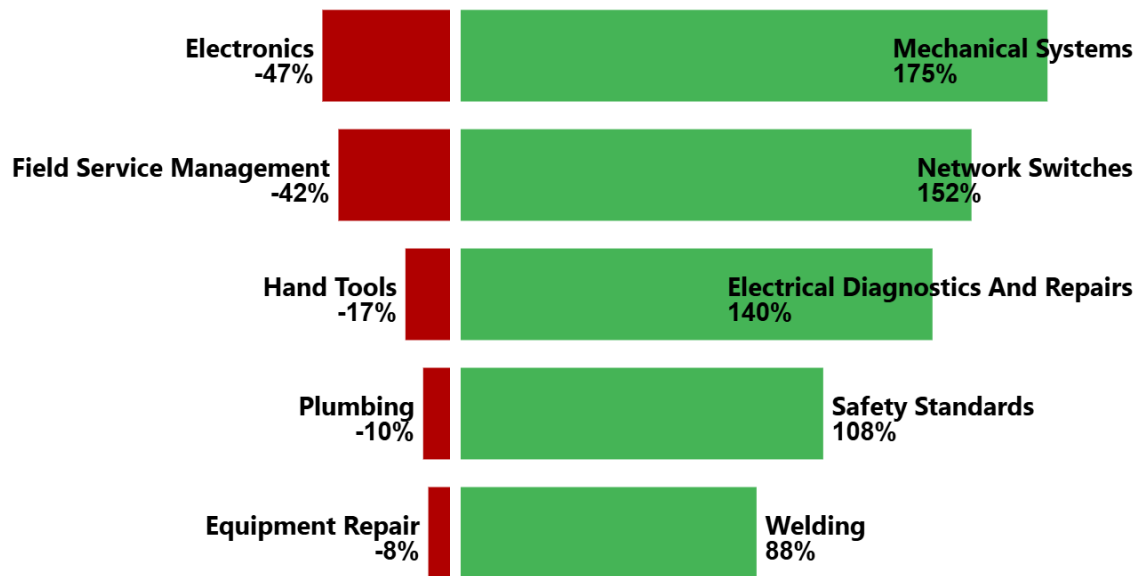
Exhibit 2.5.3: Top Specialized Skills from Employer Job Ads for Electrical and Electronic Equipment Mechanics, Installers, and Repairers Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.5.4 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the electrical and electronic equipment mechanics, installers, and repairers occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with mechanical systems skills has increased by 175% compared to the previous period (2018-2023). Employers' desire for candidates with electronics and field service management skills has decreased by more than 40% between the two periods in the Inland Empire.

Exhibit 2.5.4: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Electrical and Electronic Equipment Mechanics, Installers, and Repairers in the Inland Empire/Desert Region

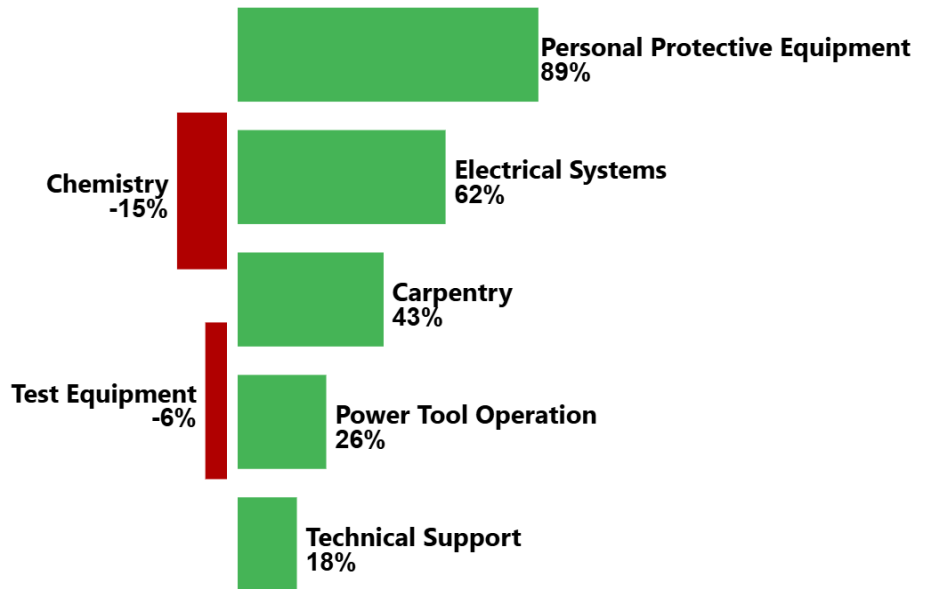


Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.5.5 displays the specialized skills that have increased or decreased the most in their share of job advertisements for the electrical and electronic equipment mechanics, installers, and repairers occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with personal protective equipment skills has increased by 89%

since the previous period (2018-2023). Employers' desire for candidates with chemistry skills has decreased by 15% between the two periods in California.

Exhibit 2.5.5: Specialized Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Electrical and Electronic Equipment Mechanics, Installers, and Repairers in California

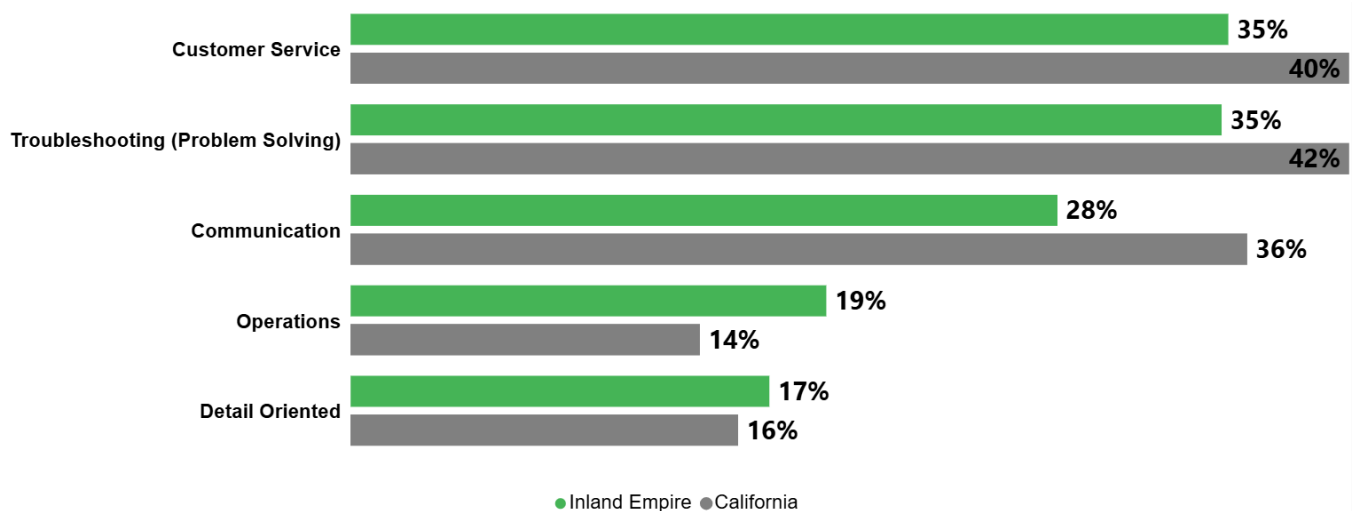


Source: Lightcast 2025.4 – Job Posting Analytics

Foundational Skills

Exhibit 2.5.6 displays the top foundational skills included in employer job advertisements for electrical and electronic equipment mechanics, installers, and repairers in the Inland Empire/Desert Region and their share of job ads in California. The top skills may provide insight into the foundational skills employers find critical to employment. Customer service and troubleshooting (problem-solving) was the top foundational skill for this occupational group across both regions.

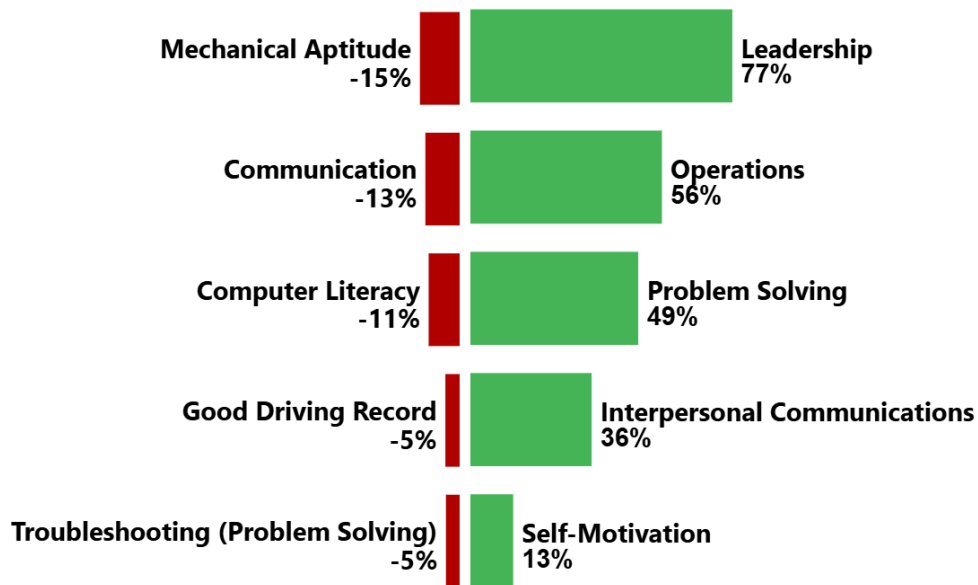
Exhibit 2.5.6: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Electrical and Electronic Equipment Mechanics, Installers, and Repairers Inland Empire/Desert Region and California, October 2023 – September 2025



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.5.7 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the electrical and electronic equipment mechanics, installers, and repairers occupational group in the Inland Empire/Desert Region, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with leadership skills has increased by 77% since the previous period (2018-2023). Employers' desire for candidates with mechanical aptitude skills has decreased by 15% between the two periods in the Inland Empire.

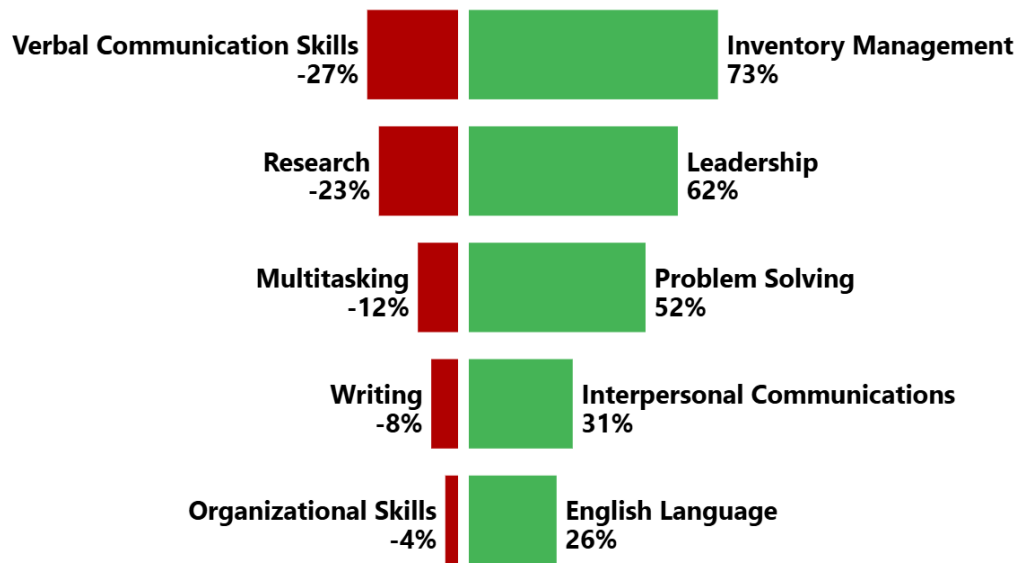
Exhibit 2.5.7: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Electrical and Electronic Equipment Mechanics, Installers, and Repairers in the Inland Empire/Desert Region



Source: Lightcast 2025.4 – Job Posting Analytics

Exhibit 2.5.8 displays the foundational skills that have increased or decreased the most in their share of job advertisements for the electrical and electronic equipment mechanics, installers, and repairers occupational group in California, based on a comparison of the two time periods. Recent employer demand (2023-2025) for candidates with inventory management skills has grown by 73% since the previous period (2018-2023). Employers' desire for candidates with verbal communication skills has decreased by 27% between the two periods in California.

Exhibit 2.5.8: Foundational Skills that Have Increased or Decreased the Most in Their Share of Job Advertisements for Electrical and Electronic Equipment Mechanics, Installers, and Repairers in California



Source: Lightcast 2025.4 – Job Posting Analytics

Qualifications and Programs

Exhibit 2.5.9 displays the qualifications most frequently included in employer job advertisements for electrical and electronic equipment mechanics, installers, and repairers. A valid driver’s license was the most frequently requested qualification in employer job advertisements, appearing in over 30% of job ads.

Exhibit 2.5.9: Top Qualifications Skills from Employer Job Ads for Electrical and Electronic Equipment Mechanics, Installers, and Repairers Inland Empire/Desert Region and California, October 2023 – September 2025

Inland Empire/Desert Region		California	
Qualification	Share	Qualification	Share
Valid Driver's License	32%	Valid Driver's License	35%
EPA Universal Certification	5%	Automotive Service Excellence (ASE) Certification	2%
Automotive Service Excellence (ASE) Certification	4%	Security Clearance	1%
CDL Class C License	1%	Commercial Driver's License (CDL)	1%
Commercial Driver's License (CDL)	1%	CDL Class B License	1%

Source: Lightcast 2025.4 – Job Posting Analytics

The following community college programs prepare students for employment in the electrical and electronic equipment mechanics, installers, and repairers occupational group.

- Computer Electronics (0934.10)
- Electro-Mechanical Technology (0935.00)
- Electronics and Electric Technology (0934.00)
- Industrial Electronics (0934.20)

SECTION 3: HOW CAN SKILLS INFORMATION BE USED TO GUIDE CAREER EDUCATION PROGRAM DEVELOPMENT IN THE INLAND EMPIRE/DESERT REGION?

To identify which skills are increasing most noticeably in employer demand, we compared their prevalence in job postings across the two time periods analyzed. We then examined how many middle-skill occupational minor groups each skill appeared in. Weighting skills by the number of occupational groups in which they increased provides a clearer indication of which skill shifts are occurring broadly across the sector rather than within isolated occupations. Below is the distribution within each skills tier for skills which are increasing by 10% or more:

- Foundational skills (33.9% IE/D; 39.6% California)
 - These are broad, transferable competencies that support problem solving, management, and operations. While not technical or occupation-specific, these skills are increasingly central to manufacturing operations, where analytical thinking and operational management are essential.
- Specialized or technical skills
 - Industry-specific (15.7% IE/D; 14.2% California)
 - These skills reflect deeper industrial or operational expertise and show the strongest alignment with the technical demands of manufacturing work.
 - Occupation-specific: (8.3% IE/D; 7.6% California)
 - These are highly technical skills tied to particular roles or specialized tasks, such as operating a coordinate measuring machine (CMM), aerospace systems, or deburring. They require more advanced training and typically reflect the unique technical demands of specific manufacturing occupations.
 - Cross-Sector: (42.2% IED; 38.7% California)
 - These are more specialized/technical than foundational skills but still found in multiple sectors. They require more advanced training but are not unique to the advanced manufacturing field.

Using the same approach as described above, we present the distribution of skills that declined in prevalence between the two time periods. This approach highlights which skill declines are sector-wide rather than limited to a single occupational group. Below is the distribution within each skills tier for skills which are decreasing by 10% or more:

- Foundational skills (53.9% IE/D; 53.9% California)
 - The skills decreasing in prevalence are not the problem solving or management skills that appear in the growing analysis above. Instead, they are primarily communication and computer literacy focused, such as verbal communication skills, computer literacy, and customer service. Their decline across multiple occupational groups suggests that employers increasingly expect technology to streamline these functions and for technical roles to focus on their primary work activities instead of soft skills.
- Specialized or technical skills
 - Industry-specific (13.5% IE/D; 2.6% California)
 - These declining skills tend to be broad or baseline manufacturing competencies that employers increasingly treat as assumed knowledge rather than differentiating qualifications. Examples include lathes, engineering tolerance, and cutting tools. Their reduced appearances in postings does not indicate these skills are less important in practice but may be more universally expected of industry professionals.

- Occupation-specific: (3.9% IE/D; 7.9% California)
 - Shrinking skills in this tier reflect baseline or non-differentiating technical activities that serve as foundational aspects of many advanced manufacturing occupations. These include skills such as machine setup, machine tools, and drill press[es]. Their decline suggests that employers assume proficiency in these competencies, or tools now exist to make these activities less reliant on experience, and they now prioritize more specialized or advanced skills in job postings.
- Cross-Sector: (28.9% IED; 15.8% California)
 - These are more specialized/technical than foundational skills but still found in multiple sectors. They require more advanced training but are not unique to the advanced manufacturing field.

The distribution of growing skills indicates that employer demand is shifting in two notable directions. Foundational skills, such as problem solving, management, and operations, remain essential across all middle-skill advanced manufacturing occupations; however, more than half of all skill growth (67% in the IE/D region) is concentrated in technical or specialized competencies that require deeper manufacturing knowledge and hands-on proficiency. These include cross-sector skills such as electrical systems, machinery, and blueprinting, as well as occupation-specific skills tied to particular roles.

By comparison, the shrinking-skills show a consistent decline in communication and computer literacy focused competencies. More than 50% of shrinking skills fall within foundational categories, and they are overwhelmingly associated with verbal communication, computer literacy, and customer service. Within technical tiers, the shrinking skills tend to be manual labor competencies (e.g., drill press and appliance repair) that may be replaced by automated functions that perform these tasks for the user.

Taken together, these patterns reveal a clear transition in the nature of middle-skill advanced manufacturing work. Tasks that are focused on human/client interaction are declining across multiple occupational groups, reflecting functions that are being handled by either automation or more customer focused occupations but are still a key part of the current job postings in this field in the region and in the country overall⁸. Conversely, the skills that are rising in prevalence are those that rely on human judgement and operations management via the lens of complex problem-solving.⁹ These are domains where the work of middle-skill manufacturing professionals still requires human judgement and control.

This shift underscores the importance of preparing students for strong foundational competencies that support modern, technology-enabled models of advanced manufacturing. For K12 and community colleges, these findings highlight several opportunities to strength program design and student outcomes:

Curriculum alignment with growing skills.

Growing skills indicate a need for stronger emphasis on both foundational and technical competencies. Colleges can review program and course learning outcomes to ensure rising skills, such as problem solving, operations, aerospace systems, operations management, and computer aided manufacturing, are explicitly and consistently taught. These competencies show the strongest growth across occupational minor groups and represent the skill sets most critical to modern, technology-integrated manufacturing work. K12 advanced manufacturing pathways can introduce early exposure to these foundational competencies so students enter community college programs with aligned expectations and baseline readiness.

⁸ Deloitte. "Taking charge: Manufacturers support growth with active workforce strategies." April 3, 2024.

<https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/supporting-us-manufacturing-growth-amid-workforce-challenges.html>

⁹ SAP. "Advanced manufacturing skills workers will need." May 30, 2023. <https://www.sap.com/blogs/advanced-manufacturing-skills-workers-will-need>

Aligning curriculum and pathways to key certifications and credentials.

Qualifications data across all minor occupational groups point to a consistent set of required and preferred certifications in the regional labor market. Programs can map course content, industrial requirements, and practicum experiences directly to credentials ensuring students graduate with credentials employers actively request. Where possible, high schools can embed pre-certification or dual enrollment opportunities to accelerate student readiness and facilitate smoother transitions into community college advanced manufacturing programs.

K12 Pathway Alignment.

The qualification and program lists can aid K12 partners aligning foundational advanced manufacturing pathway courses with postsecondary preparation. High schools offering Graphic Production Technologies, Machining and Forming Technologies, Welding and Materials Joining, and Product Innovation and Design pathways can integrate early exposure to skills such as problem solving, electrical systems, machinery, management, operations, and blueprinting skills.

APPENDICES

APPENDIX A: RESEARCH DEFINITIONS AND METHODOLOGIES

Definitions

Labor market information was pulled from Lightcast, a labor market analytics firm that specializes in providing insights for workforce development, economic planning, and education. Lightcast compiles its regional and occupational datasets from a variety of federal and state sources. Among these are the Quarterly Census of Employment and Wages (QCEW), which offers detailed industry employment and wage data, and other critical sources such as the U.S. Census Bureau's American Community Survey (ACS) and Quarterly Workforce Indicators, the Bureau of Labor Statistics' Occupational Employment and Wage Statistics and Current Population Survey, and data from the Bureau of Economic Analysis.¹⁰ These combined resources provide comprehensive insights into employment trends, wage patterns, and quality job workforce characteristics. The baseline year of 2024 was used to offer the maximum comparability with the student data available, and the projected data was through 2029.

Annual job openings include the projected growth (new jobs) and replacement needs of an occupation annually. This figure is often used to assess the expected employer demand for an occupation, providing a number of job openings that will require new workers to fill.

Educational attainment is the highest level of education attained by workers aged 25 years or older. This information may illuminate mismatches between resident skills and employment needs.

An **occupation** is a set of activities or tasks employees are paid to perform. Employees that perform essentially the same tasks are in the same occupation, whether or not they work in the same industry. Some occupations are concentrated in a few particular industries; other occupations are found in many industries. For example, jobs for registered nurses are concentrated in the healthcare industry sector, but educational industries may also employ these jobs.

SOC code: The Standard Occupational Classification system is a federally defined system used to classify workers into occupational categories that are grouped together according to job duties.¹¹

TOP code: The Taxonomy of Programs is a system of codes used by the State of California to compare differently named academic programs with similar outcomes across community colleges.¹² Each course offered by California Community Colleges is assigned to a TOP code.

Methodologies and Sources

The data sources used in this study include data from Lightcast, a labor market analytics firm that specializes in providing insights for workforce development, economic planning, and education. Lightcast compiles its regional and occupational datasets from a variety of federal and state sources. Among these are the Quarterly Census of Employment and Wages (QCEW), which offers detailed industry employment and wage data, and other critical sources such as the U.S. Census Bureau's American Community Survey (ACS) and Quarterly Workforce Indicators, the Bureau of Labor Statistics' Occupational Employment and Wage Statistics and Current Population Survey, and data from the Bureau of Economic Analysis.¹³ These combined resources provide comprehensive insights into employment trends, wage patterns, and industry-specific workforce characteristics across the Inland Empire/Desert regions.

The Lightcast taxonomy organizes skills into a tiered structure that groups related competencies according to the type of work or task they support. Within this framework, skills are categorized as common, specialized, or software skills. To determine which skills should be included in our analysis, we examined how frequently individual skills appear in job postings. We calculated the median share of job ads in which common skills appear across all occupations, providing a baseline measure of typical skill prevalence. Our analysis found that common skills typically appeared in roughly five percent of job postings across occupations. We used this median value as the threshold for determining which skills were included in our research.

The skills analysis compares skills posted over a two-year period (October 2023 – September 2025) to a historical five-year period (October 2018 – September 2023) to identify skills that are growing and shrinking in terms of their prevalence in job ads. This report intentionally uses a two-year period for the current analysis to ensure a sufficient volume of recent job advertisements and avoid the instability that can come with relying on a single year of data. The five-year historical period provides a stable benchmark of longer-term industry skill patterns and reduces the influence of short-term fluctuations. This analysis also illuminates the skills with the highest share of job ads in the most recent period to address employer demand for skills that are persistently in-demand across time.

The Standard Occupational Classification (SOC) system aggregates occupation information by four levels: major group, minor group, broad occupation, and detailed occupation.¹⁴ This report relies on the minor occupational groupings of detailed occupations for the skills analysis as it provides greater detail than the broader major occupational groups and ensures the feasibility and readability of this study that would lack in a detailed occupation skills analysis.

APPENDIX B: ADDITIONAL OCCUPATIONS RELATED TO THE CCCCCO ADVANCED MANUFACTURING SECTOR

Exhibit B.1 displays current and projected employment data for the miscellaneous occupational group from 2024 to 2029. The miscellaneous occupational group includes seven occupations that had over 8,642 jobs in 2024. This occupational group is projected to grow by nearly 3%, adding 320 jobs to the region through 2029.

Exhibit B.1: Additional Occupations Related to the CCCCCO Advanced Manufacturing Sector, Inland Empire/Desert Region, 2024-2029

SOC Minor Group Title	2024 Jobs	2029 Jobs	2024 - 2029 % Change	Average Annual Openings	Median Hourly Earnings
First-Line Supervisors of Production and Operating Workers	5,461	5,647	3%	558	\$32.16
Weighers, Measurers, Checkers, and Samplers, Recordkeeping	2,118	2,253	6%	293	\$27.29
Chemical Technicians	362	374	3%	45	\$23.68
Life, Physical, and Social Science Technicians, All Other	296	318	7%	43	\$27.40
Prepress Technicians and Workers	166	150	-10%	20	\$22.68
Engine and Other Machine Assemblers	152	137	-10%	16	\$22.58
Chemical Plant and System Operators	87	84	-4%	8	\$38.20
Total	8,642	8,962	4%	982	-

Source: Lightcast 2025.4 – Occupation Table, QCEW Employees, Non-QCEW Employees, and Self-Employed

