

⚠ Endorsed: Caution Advised			
Program LMI Endorsement Criteria			
	Met ☐	Partially Met ☒	Not Met ☐
Supply Gap:	There are projected to be 127 annual job openings throughout Los Angeles and Orange counties for these process technology & instrumentation occupations, which is less than the 635 awards conferred by educational institutions . However, these educational programs also prepare students for four other related occupations, which account for 1,957 additional annual job openings . <i>Because this program trains for a variety of occupations with high demand, there is most likely an undersupply of labor for instrumentation technologists.</i>		
Self-Sufficiency Standard Living Wage ¹ :	Met ☒	Partially Met ☐	Not Met ☐
	The majority (73%) of annual job openings for these process technology & instrumentation occupations have entry-level hourly wages above the OC living wage of \$27.13 .		
Education:	Met ☒	Partially Met ☐	Not Met ☐
	Typical education requirement for these middle-skill process technology & instrumentation occupations is an associate degree and between 45% and 47% of workers in the field have completed some college or an associate degree as their highest level of education .		

This LMA brief is valid for 12 months and expires October 2027.

Summary

The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to determine whether there is a supply gap in the Los Angeles and Orange counties regional labor market related to three occupations:

- Middle-Skill
 - Calibration Technologists and Technicians (17-3028)
 - Electro-Mechanical and Mechatronics Technologists and Technicians (17-3024)
 - Precision Instrument and Equipment Repairers, All Other (49-9069)

Although the number of awards exceeds demand for these occupations, supply is likely overstated because related educational programs train for four additional occupations. When considering the demand across these occupations, it is likely the region faces a supply gap for these process technology & instrumentation middle-skill occupations. Additionally, entry-level wages are above the Self-Sufficiency Standard living wage and typical education

¹ The living wage endorsement criteria in this report uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard, which the COE refers to as a living wage; Orange County's living wage of \$27.13, was last updated in March 2024.

requirements for these occupations align with a community college education. **Therefore, due to some of the regional labor market criteria being met, the COE endorses this proposed program.**

Exhibit 1 lists the occupational demand, supply, typical entry-level education, and educational attainment for the middle-skill occupations included in this report.

Exhibit 1: Labor Market Endorsement Summary

Occupation (SOC)	Demand (Annual Openings)	Supply (CC and Non-CC)	Entry-Level Hourly Earnings (25th Percentile)	Typical Entry-Level Education	Community College Educational Attainment
Electro-Mechanical and Mechatronics Technologists and Technicians (17-3024)	LA: 26	LA: 51	OC: \$38.17	Associate's degree	47%
	OC: 14	OC: 12			
	TTL: 40	TTL: 63			
Calibration Technologists and Technicians (17-3028)	LA: 35	LA: 495	OC: \$30.30	Associate's degree	47%
	OC: 15	OC: 77			
	TTL: 50	TTL: 572			
Precision Instrument and Equipment Repairers, All Other (49-9069)	LA: 26	<i>Accounted for Above</i>	OC: \$25.96	High school diploma or equivalent	45%
	OC: 12				
	TTL: 38				
Total	127	635	N/A	N/A	N/A

Demand

- In Los Angeles and Orange counties, the number of jobs related to these process technology & instrumentation occupations are projected to decrease 1% through 2030, equating to 127 annual job openings.
- Hourly entry-level wages for these process technology & instrumentation occupations range from \$25.96 to \$38.17 in Orange County; 70% of annual openings have entry-level wages above the Self-Sufficiency Standard living wage.
- There were 1,104 online job postings for these process technology & instrumentation occupations over the past 12 months. The highest number of postings were for calibration technicians, service technicians, and repair technicians.
- The typical entry-level education for these process technology & instrumentation occupations ranges from a high school diploma to an associates degree.
- Between 45% and 47% of workers in the field have completed some college or an associate degree as their highest level of educational attainment.

Supply

- Between 2022 to 2024, an average of 552 awards were conferred by 21 community colleges for these middle-skill occupations in Los Angeles and Orange counties.

- From 2021 to 2024, non-community college institutions conferred an average of 83 awards for these middle-skill occupations.
- In the 2023-24 academic year, there is insufficient data to determine if Orange County community college students that exited process technology & instrumentation programs attained the regional living wage.
- In 2022-23, there is insufficient data to determine the percentage of Orange County process technology & instrumentation students that exited their programs and worked a job closely related to their field of study.

Demand

Occupational Projections

Exhibit 2 shows the annual percentage change in jobs for these process technology & instrumentation occupations from 2020 through 2030. Beginning in 2025, Orange County job levels are projected to grow at a similar rate than all occupations through 2030.

Exhibit 2: Annual Percentage Change in Jobs for Process Technology & Instrumentation Occupations, 2020-2030

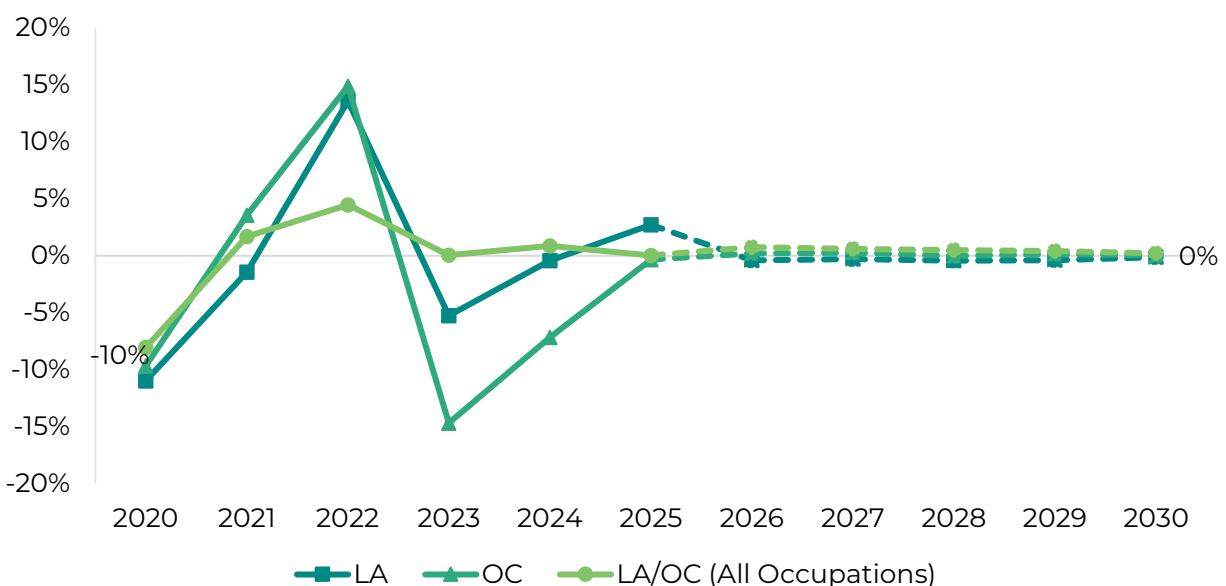


Exhibit 3 shows the five-year occupational demand projections for these middle-skill process technology & instrumentation occupations. In Los Angeles and Orange counties, the number of jobs related to these occupations is projected to decrease 1% through 2030. There is projected to be 127 jobs available annually.

Exhibit 3: Middle-Skill Occupational Demand in Los Angeles and Orange Counties²

Geography	2025 Jobs	2030 Jobs	2025-2030 Change	2025-2030 % Change	Annual Openings
Los Angeles	975	959	(16)	(2%)	87
Orange	459	462	3	1%	41
Total	1,434	1,421	(13)	(1%)	127

² Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

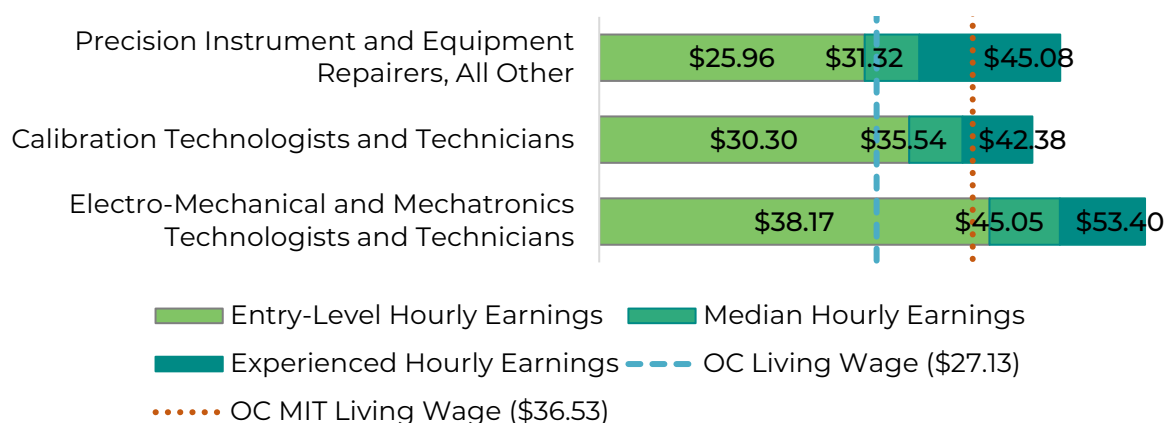
Wages

The labor market endorsement in this report considers the entry-level hourly wages for these process technology & instrumentation occupations in Orange County as they relate to the county's living wage. Los Angeles County wages are included below to provide a complete analysis of the LA/OC region.

In addition to the Self Sufficiency Standard living wage, data for the MIT Living Wage (updated on February 15, 2026) is provided as a reference. Currently, the MIT Living Wage in Orange County is \$36.53. Both figures account for geographic-specific costs of necessities such as housing, food, health care, and transportation to assess the cost of living, and are notated in the exhibits below.

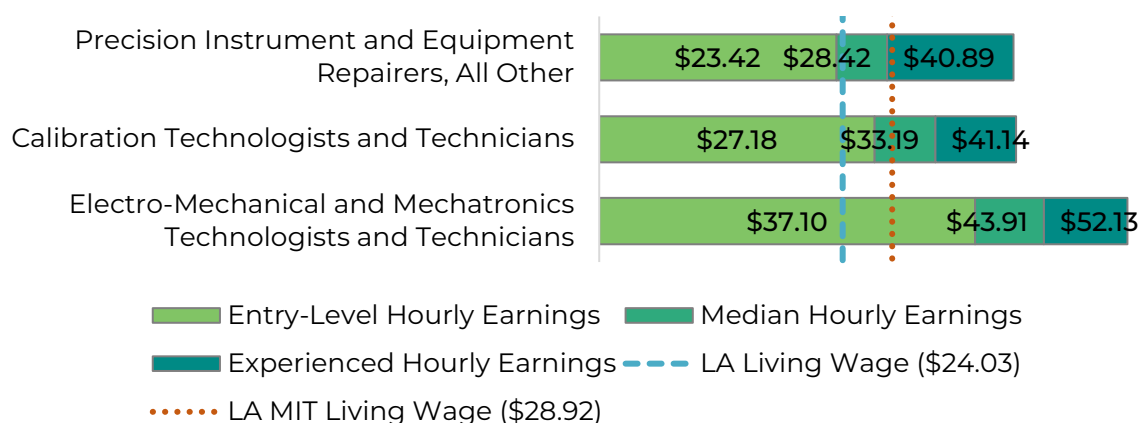
In Orange County, 70% of annual openings for these process technology & instrumentation occupations have entry-level wages above the Self-Sufficiency living wage of \$27.13 for a single adult, ranging from \$25.96 to \$38.17. Exhibit 4 shows the wage range for each of these process technology & instrumentation occupations in Orange County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 4: Wages by Occupation in Orange County



In Los Angeles County, 70% of annual openings for these process technology & instrumentation occupations have entry-level wages below the Self-Sufficiency living wage of \$24.03 for a single adult, ranging from \$23.42 to \$37.10. Exhibit 5 shows the wage range for each of these process technology & instrumentation occupations in Los Angeles County and how they compare to the regional living wage, sorted from lowest to highest entry-level wage.

Exhibit 5: Wages by Occupation in Los Angeles County



Resilient Jobs and U.S. News & World Report Best Jobs

Exhibit 6 shows if each occupation is considered an Orange County Great Recession-Resilient, COVID-19 Pandemic Recession-Resilient Job, or a 2026 U.S. News & World Report (USN&WR) Best Job³. None of these three process technology & instrumentation occupations meet the criteria to be considered a COVID-19 Pandemic Recession-Resilient Job, Great Recession-Resilient Jobs or USN&WR Best Jobs.

Exhibit 6: Resilient Jobs and USN&WR Best Jobs Designations

Occupation	Great Recession-Resilient Job	COVID-19 Pandemic Recession-Resilient Job	2026 USN&WR Best Job
Electro-Mechanical and Mechatronics Technologists and Technicians	☐	☐	☐
Calibration Technologists and Technicians	☐	☐	☐
Precision Instrument and Equipment Repairers, All Other	☐	☐	☐

Job Postings

Important Job Postings Data Note: There are limitations when analyzing job postings. A single job posting may not represent a single job opening for a variety of reasons.

There were 1,104 online job postings related to these process technology & instrumentation occupations listed in the past 12 months. Exhibit 7 shows the number of job postings by occupation.

Exhibit 7: Number of Job Postings by Occupation (n=1,104)

Occupation	Job Postings	Percentage of Job Postings
Precision Instrument and Equipment Repairers, All Other	742	67%
Calibration Technologists and Technicians	235	21%
Electro-Mechanical and Mechatronics Technologists and Technicians	127	12%
Total Postings	1,104	100%

Job Postings for Middle-Skill Occupation

The top job titles for these middle-skill process technology & instrumentation occupations in the region, by number of job postings, are shown in Exhibit 8.

Exhibit 8: Top Job Titles by Number of Job Postings for Middle-Skill Occupation (n=1,104)

Job Titles	Job Postings	Percentage
Calibration Technicians	125	11%
Service Technicians	107	10%
Repair Technicians	54	5%
Mechatronics Technicians	41	4%
Repair and Tool Technicians	33	3%

³ "100 Best Jobs," U.S. News & World Report, accessed January 12, 2026, <https://money.usnews.com/careers/best-jobs/rankings/the-100-best-jobs>.

Job Titles	Job Postings	Percentage
Plumbing Service Technicians	32	3%
Cell Phone Repair Technicians	27	2%
Geek Squad Advanced Repair Agents	26	2%
Robotics Technicians	21	2%
Calibration Engineers	16	1%

The top employers for these middle-skill process technology & instrumentation occupations in the region, by number of job postings, are shown in Exhibit 9.

Exhibit 9: Top Employers by Number of Job Postings for Middle-Skill Occupation (n=1,104)

Employer	Job Postings	Percentage of Job Postings
Micro Quality Calibration	45	4%
The Home Depot	31	3%
Cushman & Wakefield	30	3%
Best Buy	26	2%
Safran	17	2%
Edjoin.Org	14	1%
KBR	14	1%
Amazon	13	1%
ERTMS Accredited Labs	12	1%
Divergent Agency	10	<1%

The top specialized, soft, and computer skills for these middle-skill process technology & instrumentation occupations listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 10.

Exhibit 10: Top Skills by Number of Job Postings for Middle-Skill Occupation (n=1,104)

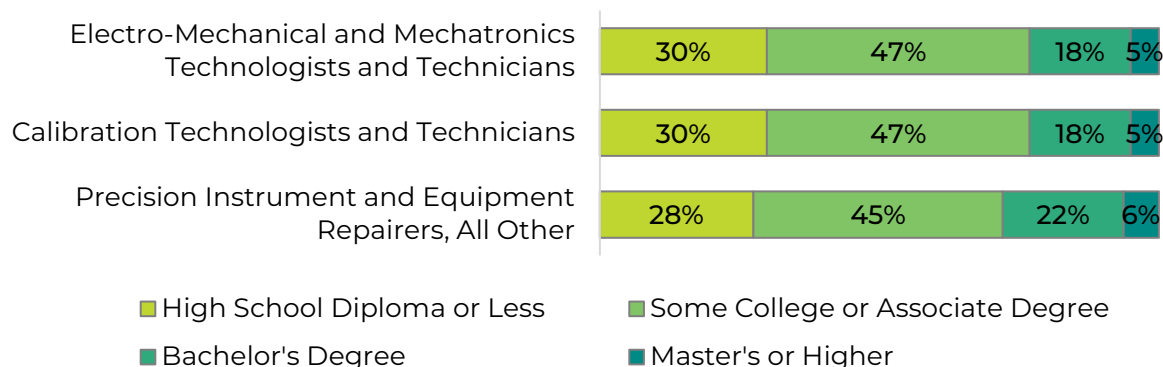
Top Specialized Skills	Top Soft Skills	Top Computer Skills
Calibration (197)	Troubleshooting (Problem Solving) (523)	Microsoft Excel (121)
Lifting Ability (184)	Communication (487)	Microsoft Office (110)
Electronics (162)	Customer Service (339)	Microsoft PowerPoint (61)
Good Driving Record (138)	Detail Oriented (289)	Microsoft Word (61)
Hand Tools (127)	Operations (221)	Microsoft Outlook (44)
Test Equipment (118)	Problem Solving (203)	Disassembler (24)
Auditing (114)	Management (124)	Operating Systems (23)
Preventive Maintenance (110)	Microsoft Excel (121)	Inventory Control Systems (15)
Metrology (106)	Microsoft Office (110)	Mac OS (15)
Robotics (100)	Computer Literacy (105)	Software Systems (14)

Educational Attainment

The Bureau of Labor Statistics (BLS) lists associate's degree as the typical entry-level education for *calibration technologists and technicians, electro-mechanical and mechatronics technologists and technicians*, and high school diploma or equivalent for *precision instrument and equipment repairers, all other*.

The national-level educational attainment data indicates between 45% and 47% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 11 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Exhibit 11: National-level Educational Attainment for Occupations



Requested Minimum Education Requirement

Of the cumulative job postings for these process technology & instrumentation occupations in Los Angeles and Orange counties that listed a minimum education requirement:

- 41% (456) of Middle-Skill Occupations Job Postings
 - 89% (406) requested a high school diploma or associate degree
 - 9% (42) requested a bachelor's degree

Educational Supply

The following tables display the total educational supply for the TOP and CIP codes associated with the middle-skill occupations.

Community College Supply

Exhibit 12 shows the three-year average number of awards conferred by community colleges in the related TOP codes:

- Electronics and Electric Technology (0934.00)
- Electro-Mechanical Technology (0935.00)
- Manufacturing and Industrial Technology (0956.00)

The colleges with the most completions in the region are Mt San Antonio (160), followed by East LA (119), and Long Beach (94). Over the past 12 months, there were no other related program recommendation requests from regional community colleges.

No awards were conferred for the following TOP code: Instrumentation Technology (0943.00).

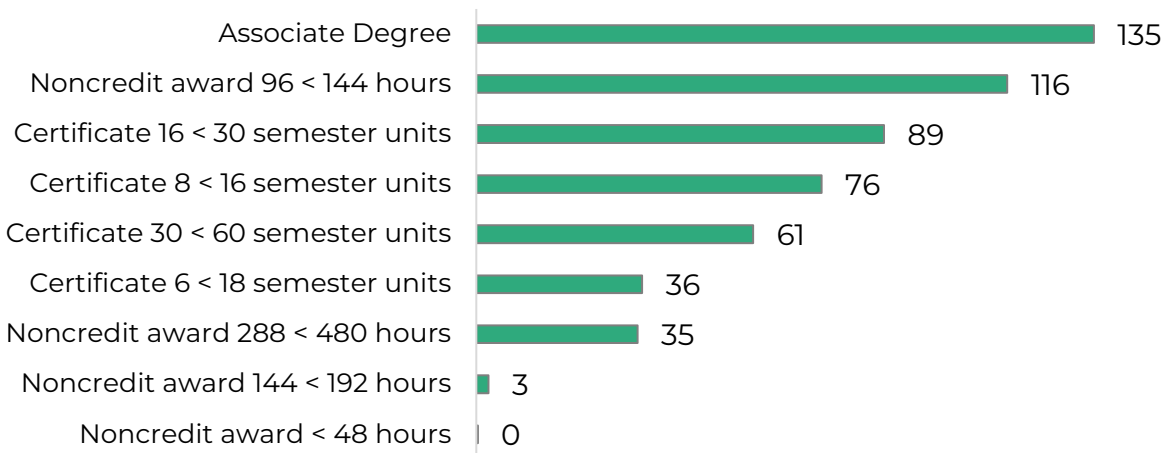
Exhibit 12: Regional Community College Awards (Certificates and Degrees), 2022-2025

TOP Code	Program	College	2022-2023 Awards	2023-2024 Awards	2024-2025 Awards	3-Year Award Average
0934.00	Electronics and Electric Technology	East LA	98	117	141	119
		El Camino	7	8	18	11
		Glendale	7	5	4	5
		LA Pierce	13	6	7	9
		LA Southwest	6	5	0	4
		LA Valley	24	18	25	22
		Long Beach	69	113	100	94
		Mt San Antonio	138	121	139	133
		Pasadena	5	8	43	19
		Rio Hondo	2	6	0	3
		LA Subtotal	369	407	477	418
		Coastline	23	13	3	13
		Irvine	12	15	12	13
		Saddleback	21	16	17	18
		OC Subtotal	56	44	32	44
Supply Subtotal/Average			425	451	509	462
0935.00	Electro-Mechanical Technology	-	-	-	-	-
		LA Subtotal	-	-	-	-
		Orange Coast	0	3	1	1
		Santa Ana	8	11	12	10
		OC Subtotal	8	14	13	12
Supply Subtotal/Average			8	14	13	12

TOP Code	Program	College	2022-2023 Awards	2023-2024 Awards	2024-2025 Awards	3-Year Award Average
0956.00	Manufacturing and Industrial Technology	Cerritos	1	5	1	2
		El Camino	1	0	3	1
		LA Trade	3	5	20	9
		LA Valley	2	5	8	5
		Mt San Antonio	26	28	27	27
		West LA	0	2	3	2
		LA Subtotal	33	45	62	47
		Cypress	0	4	3	2
		Fullerton	9	12	46	22
		Irvine	0	0	3	1
		Saddleback	4	3	4	4
		Santiago Canyon	6	2	0	3
		OC Subtotal	19	21	56	32
		Supply Subtotal/Average	52	66	118	79
		Supply Total/Average	485	531	640	552

Exhibit 13 shows the annual average community college awards by type from 2022-23 to 2024-25. The plurality of the awards are for associate degree, followed by noncredit award 96 to 144 hours then certificate 16 to 30 semester units.

Exhibit 13: Annual Average Community College Awards by Type, 2022-2025



Community College Student Outcomes

Exhibit 14 shows the Strong Workforce Program (SWP) metrics for instrumentation technology programs in Coast Community College District (CCCD), the Orange County Region, and California. Per California Colleges Curriculum Inventory (COCI), Orange County does not offer any programs under the TOP code: Instrumentation Technology (0943.00). Therefore, there is insufficient data to determine strong workforce program metrics.

**Exhibit 14: Instrumentation Technology (0943.00) Strong Workforce Program
Metrics, 2022-25⁴**

SWP Metric	CCCD	OC Region	California
SWP Students	N/A	N/A	35
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	N/A	N/A	71%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	N/A	N/A	Insufficient Data
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	N/A	N/A	13
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2023-24)	N/A	N/A	0
SWP Students with a Job Closely Related to Their Field of Study (2022-23)	N/A	N/A	Insufficient Data
Median Annual Earnings for SWP Exiting Students (2023-24)	N/A	N/A	Insufficient Data
Median Change in Earnings for SWP Exiting Students (2023-24)	N/A	N/A	Insufficient Data
SWP Exiting Students Who Attained the Living Wage (2023-24)	N/A	N/A	Insufficient Data

Non-Community College Supply

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering instrumentation technology programs. Exhibit 15 displays the annual and three-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) codes:

- Electrical, Electronic, and Communications Engineering Technology/Technician (15.0303)
- Mechanical/Mechanical Engineering Technology/Technician (15.0805)

The available data covers 2021 to 2024. During this period, non-community college institutions in the region conferred an average of 83 awards annually in related programs.

No awards were conferred for the following CIP codes: Instrumentation Technology/Technician (15.0404).

Exhibit 15: Regional Non-Community College Awards, 2021-2024

CIP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
15.0303	Electrical, Electronic, and Communications Engineering Technology/Technician	California State Polytechnic University-Pomona	16	37	21	25
		California State University-Long Beach	4	9	6	6
		Chapman University	0	2	0	1
Supply Subtotal/Average			20	48	27	32

⁴ All SWP metrics are for 2024-25 unless otherwise noted.

CIP Code	Program	College	2021-2022 Awards	2022-2023 Awards	2023-2024 Awards	3-Year Award Average
15.0805	Mechanical/Mechanical Engineering Technology/Technician	California State Polytechnic University-Pomona	57	53	43	51
Supply Subtotal/Average			57	53	43	51
Supply Total/Average			77	101	70	83

Regional Demographics

The following section presents occupational and population demographic data for Orange County. This comparison can help identify possible equity gaps between the local workforce and the student pipeline who are preparing for these occupations. These insights can inform program development, outreach, and support strategies to better align community college programs with current labor market needs.

Ethnicity

Exhibit 16 compares the ethnicity of the overall Orange County population and occupation-specific data for these instrumentation technology occupations included in this report.

Asian workers have greater representation in instrumentation technology occupations (39%) relative to their proportion in the OC population, suggesting many of these workers are coming from out of the area. Conversely, Hispanic or Latino (26%) and White (26%) individuals each make up a smaller proportion of instrumentation technology workers relative to their representation in the OC population.

Exhibit 16: Program and County Demographics by Ethnicity

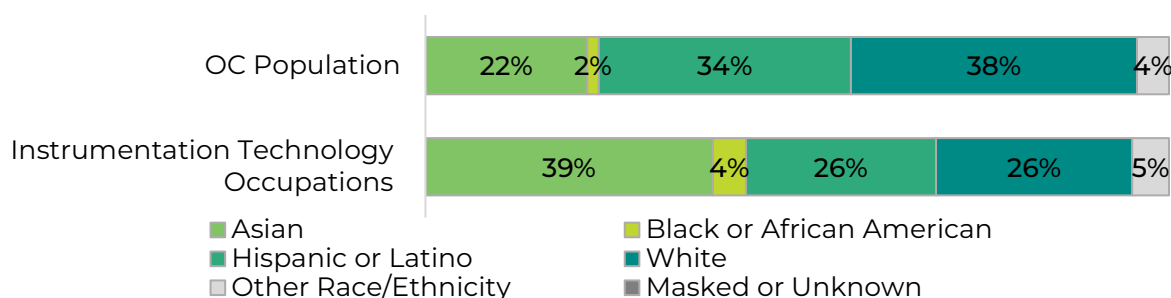
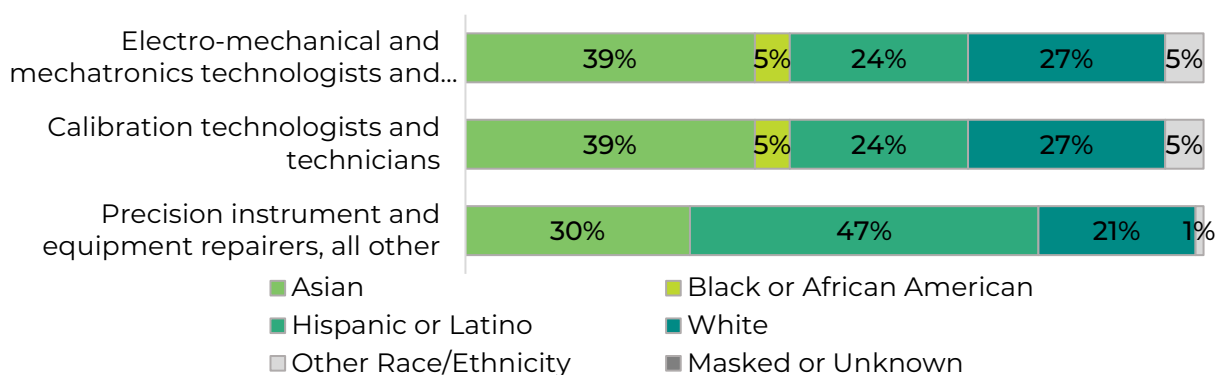


Exhibit 17 shows the disaggregated ethnicity data for each occupation, revealing potential disparities in entry into well-paying occupations or career advancement.

Out of all instrumentation technology workers, Hispanic or Latino make up 47% of the workforce in the lower paying (\$25.96), lower educational requirement (High school diploma or equivalent) occupation *instrument and equipment repairers*, but 24% in both the higher paying occupations, *electro-mechanical and mechatronics technologists and technicians* (\$38.17) and *calibration technologists and technicians* (\$30.30).

Exhibit 17: Disaggregated Ethnic Distribution by Occupation



Age

Exhibit 18 compares the age of the overall Orange County population and occupation-specific data for these instrumentation technology occupations included in this report.

The vast majority (71%) of instrumentation technology workers are 35 and older. This may indicate the need for more on-the-job experience to become an instrumentation technology worker.

Exhibit 18: Program and County Demographics by Age

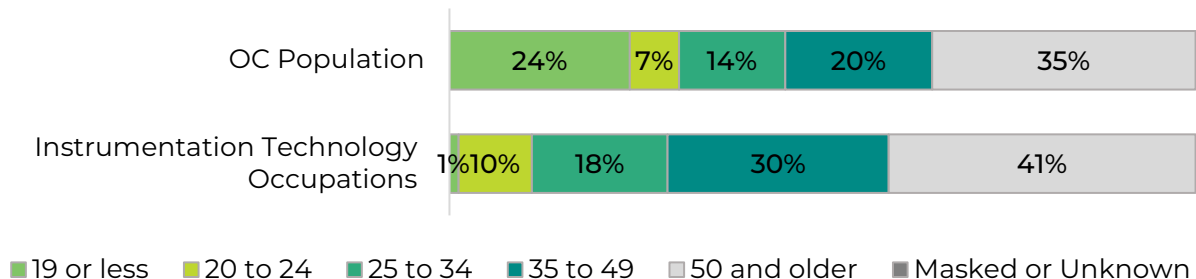
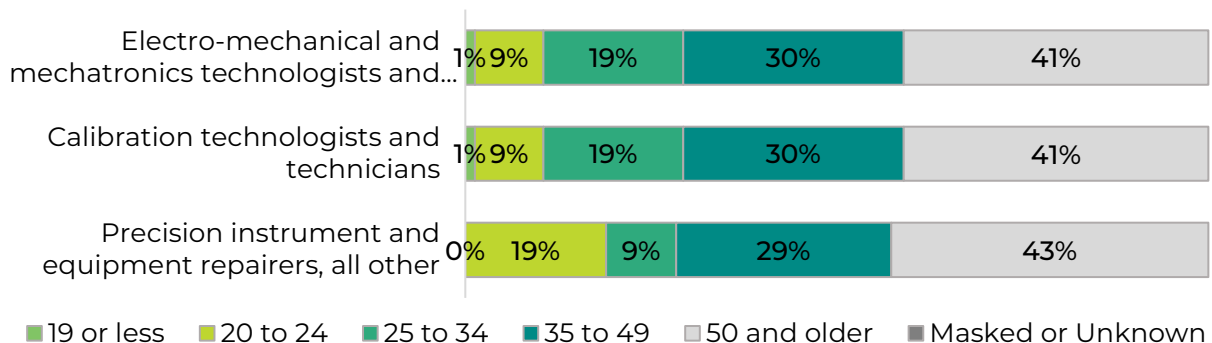


Exhibit 19 shows the disaggregated age data for each occupation, revealing potential disparities in entry into well-paying occupations or career advancement.

There is a similar breakdown between age groups for those 35 and older across all three occupations. When looking at those under 35, a greater proportion of those aged 20 to 24 (19%) are concentrated in the lower paying (\$25.96), lower educational requirement (High school diploma or equivalent) occupation *instrument and equipment repairers*, compared to the higher paying occupations (9%), *electro-mechanical and mechatronics technologists and technicians* (\$38.17) and *calibration technologists and technicians* (\$30.30). This trend is reversed for those 25 to 34, suggesting there may be a need for additional training or experience to obtain these positions.

Exhibit 19: Disaggregated Age Distribution by Occupation



Sex

Exhibit 20 compares the sex of the overall Orange County population, and occupation-specific data for these instrumentation technology occupations.

Though the population is split evenly between women and men, only 18% of instrumentation technology workers in the field are women.

Exhibit 20: Program and County Demographics by Sex

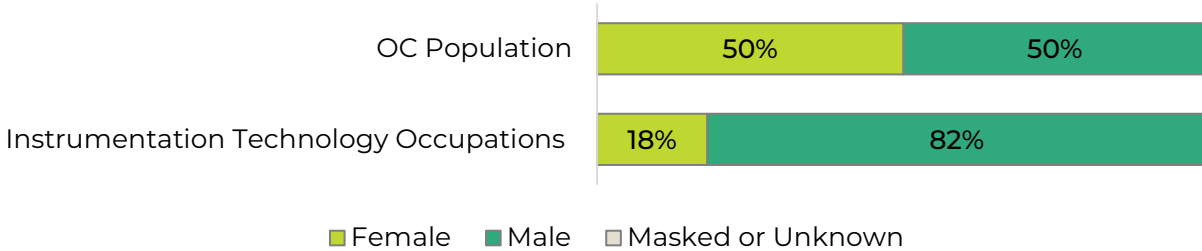
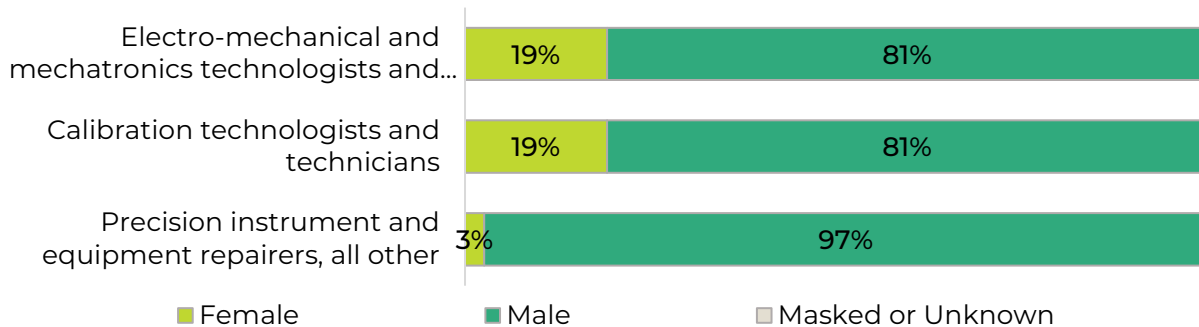


Exhibit 21 shows the disaggregated sex data for each occupation, revealing potential disparities in entry into well-paying occupations or career advancement.

Across these occupations men make up a much larger proportion of workers. Women, while largely absent in the lower paying (\$25.96), lower educational requirement (High school diploma or equivalent) occupation *instrument and equipment repairers* (3%), do make up about 19% in each of the higher paying occupations (9%), *electro-mechanical and mechatronics technologists and technicians* (\$38.17) and *calibration technologists and technicians* (\$30.30).

Exhibit 21: Disaggregated Sex Distribution by Occupation



Appendix A: Methodology

OC COE prepared this report by analyzing occupational and educational program data. Occupational data comes from Lightcast, a labor market analytics firm which compiles information from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS), and other agencies. Analysis of emerging occupations is predicated on online job postings data combined with Occupational Information Network (O*NET) profile descriptions. Program supply data was sourced from the California Community Colleges Chancellor's Office Data Mart (MIS Data Mart) (datamart.cccco.edu) and the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS, which was integrated into the COE's Supply Table. (IPEDS).

Using a TOP-SOC crosswalk, the OC COE identified middle-skill jobs for which programs within these TOP codes train. Middle-skill jobs include:

- All occupations that have an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

The OC COE determined labor market supply for each occupation (SOC code) by analyzing the number of 3-year average program completers or awards in related TOP and CIP codes. TOP code data comes from MIS Data Mart and CIP code data comes from the IPEDS. The TOP is a system of numerical codes used at the state level to collect and report information on California community college programs and courses throughout the state that have similar outcomes. CIP codes are a taxonomy of academic disciplines at institutions of higher education throughout the United States and Canada. The California Community Colleges are the only system that use TOP codes.

The analysis reflects labor market demand for occupations closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. Traditional labor market data was used to assess current and projected employment based on data trends for detailed occupations, as well as annual average awards granted by regional postsecondary educational institutions. Real-time labor market information (online job postings) assesses employer preferences but cannot be used to measure the quantity of open positions, number of jobs, or annual openings.

All findings are based on the most current available data and a combination of primary and secondary sources. While care was taken to ensure accuracy, the OC COE, its host district, and the California Community Colleges Chancellor's Office are not responsible for individual decisions made based on this report.

Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	Traditional and real-time labor market information are captured using data from Lightcast (v.2026.3), a labor market analytics firm.
Living Wage	Per the CCCC's this report's endorsement criteria uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard last updated in March 2024, which is \$27.13 per hour (\$57,294 annually) in Orange County. The MIT Living Wage, updated on February 15, 2026, is a nationally recognized living wage metric and is provided for reference. The current MIT Living Wage in Orange County is \$36.53.
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (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.
Emerging Occupation Descriptions, Additional Education Requirements, and Employer Preferences	The O*NET database includes information on skills, abilities, knowledges, work activities, and interests associated with occupations.
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions).
Student Metrics and Demographics	Data Vista , a statewide data system supported by the California Community Colleges Chancellor's Office provides data on progress, success, employment, and earnings outcomes for California community college students.
Population and Occupation Demographics	The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products.

For more information, please contact the Orange County Center of Excellence:

Jesse Crete, Ed. D., Regional Director
crete_jesse@rscdd.edu

October 2026

