Labor Market Analysis for Program Modification: 0956.00/Manufacturing and Industrial Technology (*Metrology Certificate, Metrology Mini Skills Certificate*)

Orange County Center of Excellence, March 2025

Summary

Program LMI Endorsement	Endorsed: All LMI Criteria Met ☐	Endorsed: Some LMI Criteria Met ☒	Not LMI Endorsed ☐

Program LMI Endorsement Criteria		
Supply Gap:	Yes ☑	No ☐
	Comments: There are projected to be **2,656 middle-skill annual job openings** throughout Los Angeles and Orange counties for these metrology occupations, which **is more than the 491 awards conferred by educational institutions.**	
CA Insight Living Wage: (Entry-Level, 25th)[1]	Yes ☐	No ☑
	Comments: **Nearly 95% of annual job openings** for these metrology occupations **have entry-level hourly wages below the OC living wage of $20.63.**	
Education:	Yes ☑	No ☐
	Comments: Most (95%) annual openings for these metrology occupations typically require a high school diploma or equivalent. However, **between 37% and 51% of workers in the field have completed some college or an associate degree as their highest level of education.**	

Emerging Occupation(s)	
Yes ☐	*No* ☑
Comments: N/A	

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/Orange County regional labor market related to three middle-skill occupations:

- *Industrial Engineering Technologists and Technicians (17-3026)*
- *Calibration Technologists and Technicians (17-3028)*
- *Inspectors, Testers, Sorters, Samplers, and Weighers (51-9061)*

Based on the available data, there appears to be a supply gap for these metrology occupations. Furthermore, though most job openings have typical entry-level wages below the California Insight living wage, typical education requirements for these occupations align with a community college education.

[1] The living wage endorsement criteria in this report uses the California Insight Center's living wage of $20.63 for Orange County, last updated in September 2021, as currently employed by the Chancellor's Office for the *Students Who Attained the Living Wage Strong Workforce Program* metric. However, this figure is outdated and does not reflect recent increases in the cost of living. The MIT Living Wage, updated on February 14, 2024, better accounts for existing economic conditions, with the current MIT Living Wage in Orange County being $30.48, which is mentioned as a reference only throughout this labor market analysis brief.

Therefore, due to some 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 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
Industrial Engineering Technologists and Technicians (17-3026)	LA: 65 OC: 44 TTL: *109*	LA: 366 OC: 80 TTL: *446*	OC: $28.72	Associate degree	51%
Calibration Technologists and Technicians (17-3028)	LA: 20 OC: 11 *TTL: 31*	*Accounted for Above*	OC: $20.87	Associate degree	51%
Inspectors, Testers, Sorters, Samplers, and Weighers (51-9061)	LA: 1,677 OC: 840 *TTL: 2,517*	LA: 46 OC: 0 *TTL: 46*	OC: $17.76	High school diploma or equivalent	37%
Total	**2,656**	**491**	**N/A**	**N/A**	**N/A**

Demand:

- The number of jobs related to these metrology occupations is projected to decrease 1% through 2027, equating to 2,656 annual job openings.
- Hourly entry-level wages for these metrology occupations range from $17.76 to $28.72 in Orange County; nearly 95% of annual job openings have entry-level wages below the California Insight living wage.
- There were 8,415 online job postings for these metrology occupations over the past 12 months. The highest number of postings were for quality inspectors, quality control inspectors, and quality control technicians.
- The typical entry-level education for these metrology occupations ranges from a high school diploma or equivalent to an associate degree.
- Between 37% and 51% of workers in the field have completed some college or an associate degree as their highest level of educational attainment.

Supply:

- There was an average of 406 awards conferred by 16 community colleges in Los Angeles and Orange Counties from 2019 to 2022.
- Non-community college institutions conferred an average of 85 awards from 2019 to 2021.
- Orange County community college students that exited manufacturing and industrial technology programs in the 2020-21 academic year had a median annual wage of $44,864 ($21.57 per hour) after exiting the program and 52% attained the regional living wage (California Insight).

- Throughout Orange County, 76% of manufacturing and industrial technology students that exited their program in 2019-20 reported that they are working in a job closely related to their field of study.

Demand

Occupational Projections:

Exhibit 2 shows the annual percent change in jobs for these metrology occupations from 2017 through 2027. Though employment for these metrology occupations declined 8% in Orange County from 2019 to 2022, employment for all occupations declined 7% in Los Angeles and Orange counties due to the COVID-19 pandemic. Employment for these metrology occupations continued to decrease at varying degrees through 2022.

In the years preceding the pandemic, employment for these occupations increased through 2019. However, employment for these metrology occupations is projected to remain flat in Orange County through 2027, progressing at a lower rate than all occupations across Los Angeles and Orange counties.

Exhibit 2: Annual Percent Change in Jobs for Metrology Occupations, 2017-2027

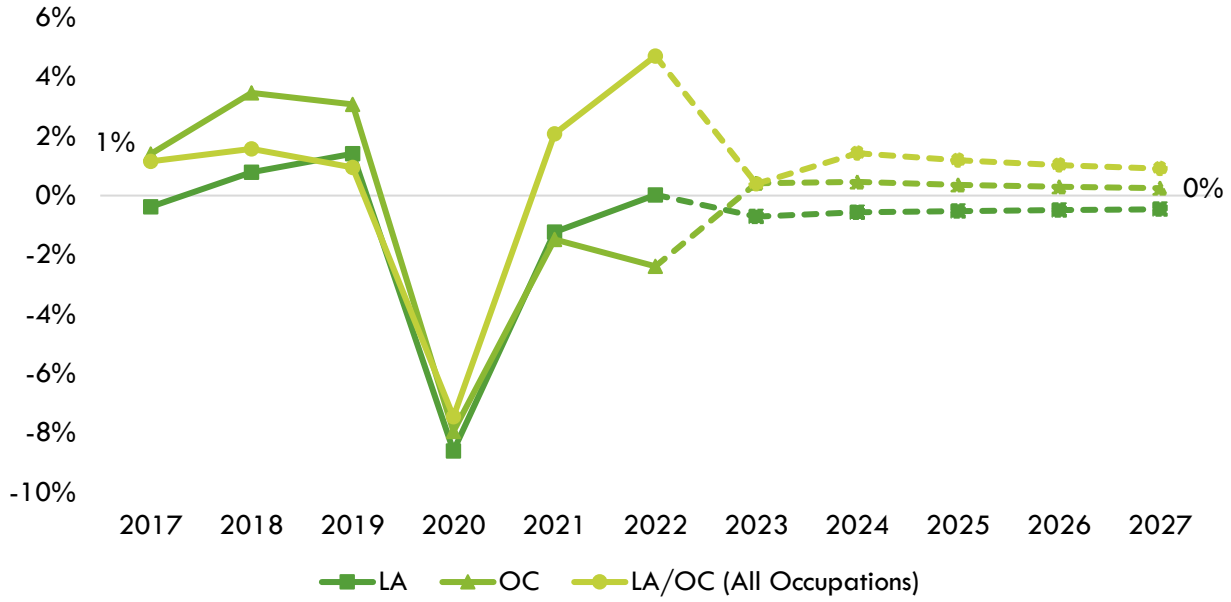


Exhibit 3 shows the five-year occupational demand projections for these metrology occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to decrease by 1% through 2027. There is projected to be 2,656 jobs available annually.

Exhibit 3: Occupational Demand in Los Angeles and Orange Counties[2]

Geography	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
Los Angeles	15,751	15,323	(428)	(3%)	1,761
Orange	7,641	7,779	137	2%	895
Total	**23,393**	**23,101**	**(291)**	**(1%)**	**2,656**

[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.

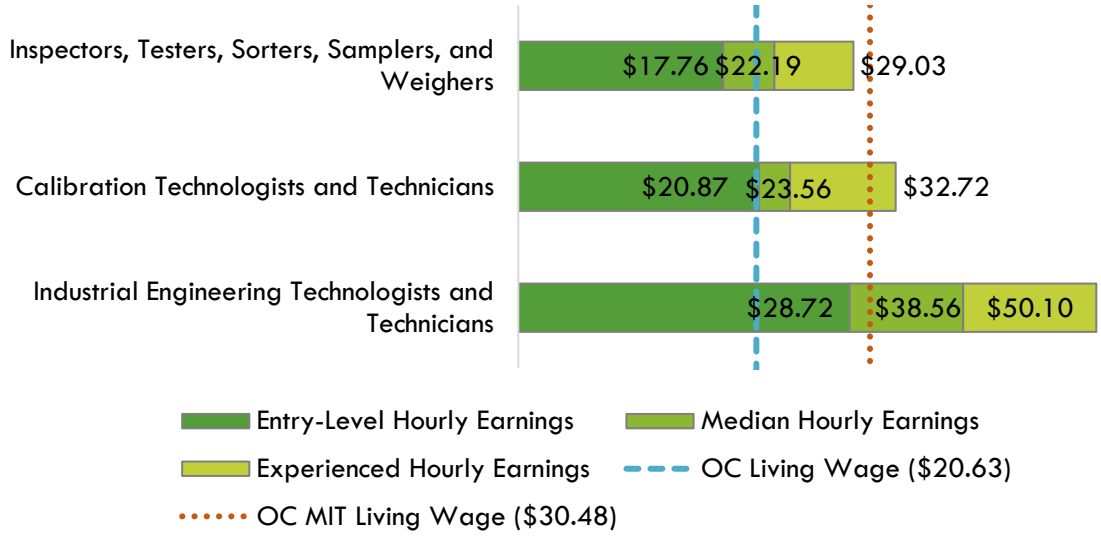
Wages:

The labor market endorsement in this report considers the entry-level hourly wages for these metrology 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.

It is important to note that the living wage endorsement criteria in this report uses the California Insight Center's living wage of $20.63 for Orange County, last updated in September 2021, as currently employed by the Chancellor's Office for the *Students Who Attained the Living Wage Strong Workforce Program* metric. However, this figure is outdated and does not reflect recent increases in the cost of living. The MIT Living Wage, updated on February 14, 2024, better accounts for existing economic conditions, with the current MIT Living Wage in Orange County being $30.48. Both figures are notated in the exhibits below.

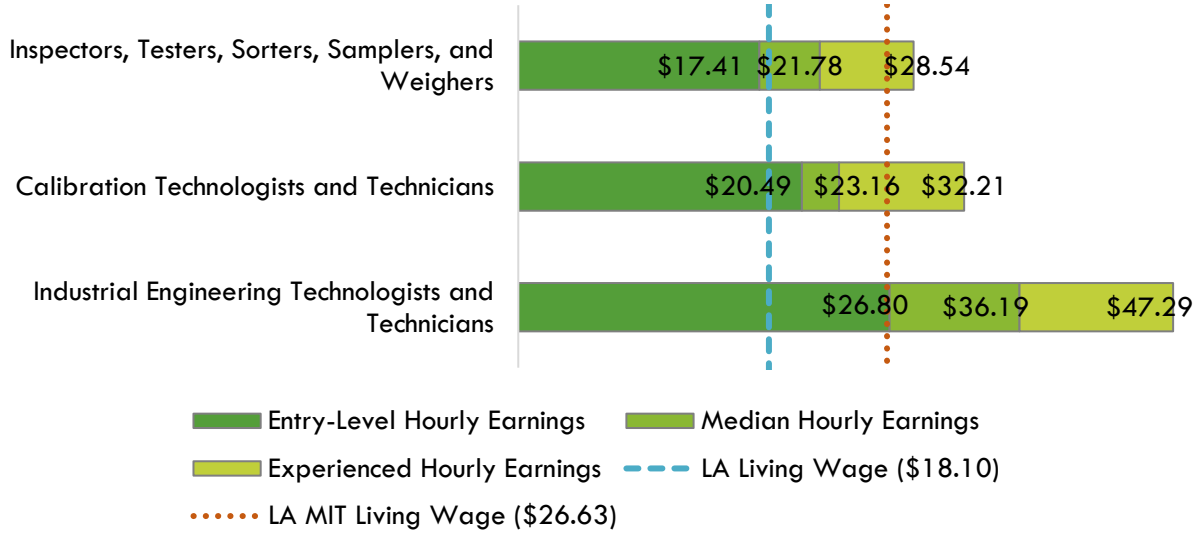
Nearly 94% of all annual openings for these metrology occupations have entry-level wages below the California Insight living wage for one adult ($20.63 in Orange County). Typical entry-level hourly wages range between $17.76 and $28.72. Orange County's average wages of $25.29 are slightly below the average statewide wage of $25.66 for these occupations. Exhibit 4 shows the wage range for each of these metrology occupations in Orange County and how they compare to the Insight and MIT living wage, sorted from lowest to highest entry-level wage.

Exhibit 4: Wages by Occupation in Orange County



Nearly 95% of all annual openings for these metrology occupations have entry-level wages below the California Insight living wage for one adult ($18.10 in Los Angeles County). Typical entry-level hourly wages range between $17.41 and 26.80. Los Angeles County's average wages of $24.72 are below the average statewide wage of $25.66 for these occupations. Exhibit 5 shows the wage range for each of these metrology occupations in Los Angeles County and how they compare to the Insight and MIT living wage, sorted from lowest to highest entry-level wage.

Exhibit 5: Wages by Occupation in Los Angeles County



Job Postings:

Important Online Job Postings Data Note: *Online job postings data is sourced from Lightcast, a labor market analytics firm that scrapes, collects, and organizes data from online job boards such as LinkedIn, Indeed, Glassdoor, Monster, GovernmentJobs.com, and thousands more. Lightcast uses natural language processing (NLP) to determine the related company, industry, occupation, and other information for each job posting. However, NLP has limitations that include understanding contextual words of phrases; determining differences in words that can be used as nouns, verbs, and/or adjectives; and misspellings or grammatical errors.*[3] *For these reasons, job postings could be assigned to the wrong employer, industry, or occupation within Lightcast's database.*

Additionally, there are several limitations when analyzing job postings. A single job posting may not represent a single job opening, as employers may be creating a pool of candidates for future openings or hiring for multiple positions with a single posting. Additionally, not all jobs are posted online, and jobs may be filled through other methods such as internal promotion, word-of-mouth advertising, physical job boards, or a variety of other channels.

There were 8,415 online job postings related to these metrology occupations listed in the past 12 months. Exhibit 6 shows the number of job postings by occupation. Nearly 80% of job postings were for *inspectors, testers, sorters, samplers, and weighers,* followed distantly by *industrial engineering technologists and technicians* (17%).

Exhibit 6: Number of Job Postings by Occupation (n=8,415)

Occupation	Job Postings	Percentage of Job Postings
Inspectors, Testers, Sorters, Samplers, and Weighers	6,770	80%
Industrial Engineering Technologists and Technicians	1,433	17%
Calibration Technologists and Technicians	212	3%
Total Postings	**2,056**	**100%**

[3] K. R. Chowdhary, Fundamentals of Artificial Intelligence (Basingstoke: Springer Nature, 2020), https://link.springer.com/book/10.1007/978-81-322-3972-7.

The top employers in the region, by number of job postings, are shown in Exhibit 7.

Exhibit 7: Top Employers by Number of Job Postings (n=8,415)

Employer	Job Postings	Percentage of Job Postings
Aerotek	444	5%
Actalent	198	2%
Kelly Services	109	1%
Volt	107	1%
Randstad	90	1%
Adecco	80	1%
Flag Solutions	68	1%
ManpowerGroup	66	1%
Precision Castparts	58	1%
SpaceX	52	1%

The top specialized, soft, and computer skills listed by those most frequently mentioned in job postings (denoted in parentheses) are shown in Exhibit 8.

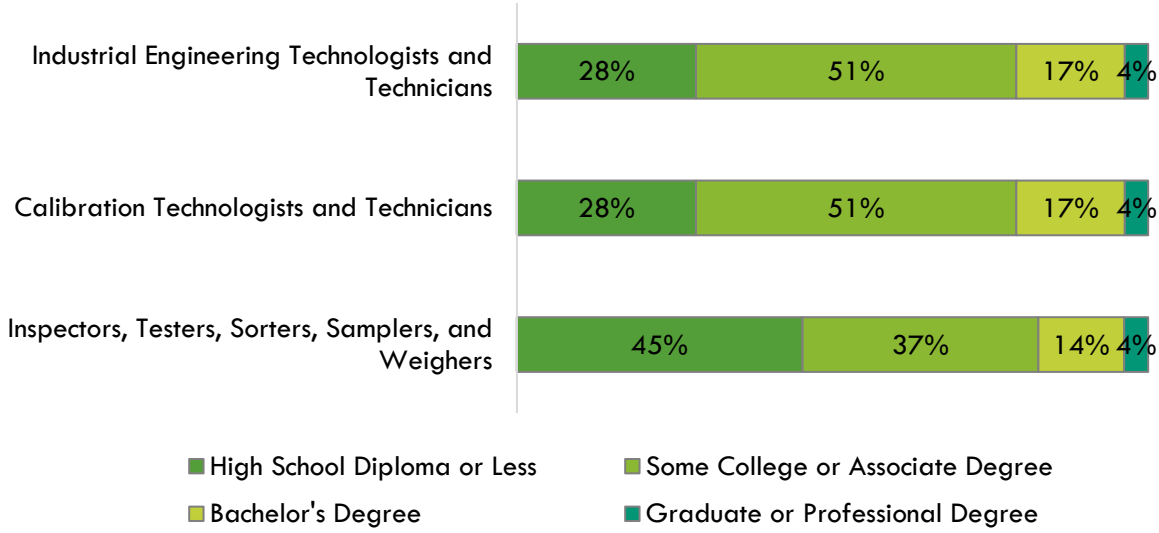
Exhibit 8: Top Skills by Number of Job Postings (n=8,415)

Top Specialized Skills	Top Soft Skills	Top Computer Skills
Auditing (1,862)	Quality Control (2,681)	Microsoft Excel (1,305)
Calipers (1,508)	Communication (2,618)	Microsoft Office (923)
Micrometer (1,483)	Quality Assurance (2,187)	Microsoft Outlook (620)
Good Manufacturing Practices (1,136)	Detail Oriented (2,018)	Microsoft Word (582)
Quality Management Systems (912)	Management (1,727)	Microsoft PowerPoint (487)
Quality Management (890)	Operations (1,544)	SAP Applications (227)
Coordinate Measuring Machine (CMM) (852)	Microsoft Excel (1,305)	Spreadsheets (188)
Machining (797)	Safety Assurance (1,299)	Microsoft Access (130)
Blueprinting (724)	Computer Literacy (1,277)	Laboratory Information Management Systems (94)
First Article Inspections (696)	Problem Solving (1,167)	JIRA (89)

Educational Attainment:

The Bureau of Labor Statistics (BLS) lists a high school diploma or equivalent *inspectors, testers, sorters, samplers, and weighers* and an associate degree as the typical entry-level education for *industrial engineering technologists and technicians* and *calibration technologists and technicians*. However, the national-level educational attainment data indicates between 37% and 51% of workers in the field have completed some college or an associate degree as their highest level of education. Exhibit 9 shows the educational attainment for each occupation, sorted by highest community college educational attainment to lowest.

Exhibit 9: National-level Educational Attainment for Occupations



Of the 59% of the cumulative job postings for these metrology occupations that listed a minimum education requirement in Los Angeles/Orange County, 77% (3,817) requested a high school diploma or an associate degree and 21% (1,056) requested a bachelor's degree.

Educational Supply

Community College Supply:

Exhibit 10 shows the three-year average number of awards conferred by community colleges in the related TOP codes:

- Engineering Technology, General (requires Trigonometry) (0924.00)
- Industrial Electronics (0934.20)
- Manufacturing and Industrial Technology (0956.00)
- Industrial and Occupational Safety and Health (0956.70)
- Other Engineering and Related Industrial Technologies (0999.00)

No awards were conferred under the following TOP codes:

- Instrumentation Technology (0943.00)
- Industrial Quality Control (0956.80)

The colleges with the most completions in the region are Pasadena, LA Southwest, and Coastline. Over the past 12 months, there were no other related program recommendation request from regional community colleges.

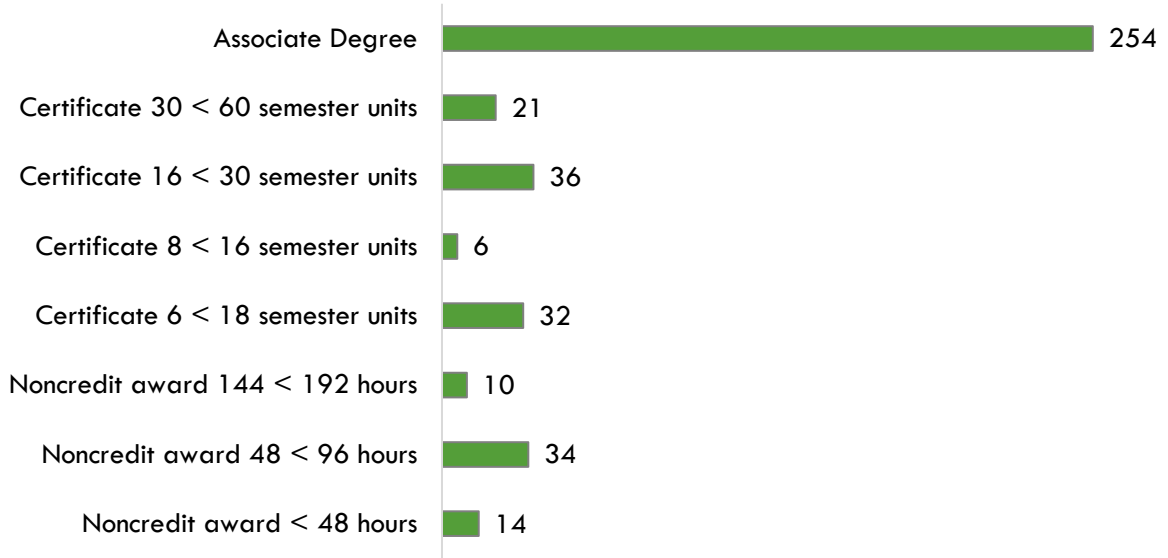
Exhibit 10: Regional Community College Awards (Certificates and Degrees), 2019-2022

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
0924.00	Engineering Technology, General (requires Trigonometry)	Cerritos	15	6	15	12
		East LA	1	1	0	1
		Glendale	7	14	3	8
		Mt San Antonio	2	0	6	3
		Pasadena	216	238	211	222
		LA Subtotal	**241**	**259**	**235**	**245**
		Santa Ana	3	5	0	3
		OC Subtotal	**3**	**5**	**0**	**3**
		Supply Subtotal/Average	**244**	**264**	**235**	**248**
0934.20	Industrial Electronics	LA Valley	0	23	0	8
		LA Subtotal	**0**	**23**	**0**	**8**
		-	-	-	-	-
		OC Subtotal	**-**	**-**	**-**	**-**
		Supply Subtotal/Average	**0**	**23**	**0**	**8**
0956.00	Manufacturing and Industrial Technology	Cerritos	0	1	1	1
		El Camino	0	0	4	1
		Glendale	2	0	1	1
		LA Trade	9	9	15	11
		LA Valley	9	7	0	5
		Mt San Antonio	14	4	13	10

TOP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2021-2022 Awards	3-Year Award Average
		LA Subtotal	**34**	**21**	**34**	**30**
		Fullerton	38	20	18	25
		Irvine	0	4	2	2
		Saddleback	7	4	8	6
		Santa Ana	3	2	4	3
		Santiago Canyon	10	12	7	10
		OC Subtotal	**58**	**42**	**39**	**46**
		Supply Subtotal/Average	**92**	**63**	**73**	**76**
0956.70	Industrial and Occupational Safety and Health	LA Southwest	0	0	117	39
		LA Trade	0	5	5	3
		LA Subtotal	**0**	**5**	**122**	**42**
		-	-	-	-	-
		OC Subtotal	**-**	**-**	**-**	**-**
		Supply Subtotal/Average	**0**	**5**	**122**	**42**
0999.00	Other Engineering and Related Industrial Technologies	Santa Monica	0	0	4	1
		LA Subtotal	**0**	**0**	**4**	**1**
		Coastline	30	42	21	31
		OC Subtotal	**30**	**42**	**21**	**31**
		Supply Subtotal/Average	**30**	**42**	**25**	**32**
		Supply Total/Average	**366**	**397**	**455**	**406**

Exhibit 11 shows the annual average community college awards by type from 2019-20 to 2021-22. The majority of the awards are for associate, followed distantly by certificates between 16 and less than 30 semester units and noncredit awards between 48 and less than 96 hours.

Exhibit 11: Annual Average Community College Awards by Type, 2019-2022



Community College Student Outcomes:

Exhibit 12 shows the Strong Workforce Program (SWP) metrics for manufacturing and industrial technology programs in North Orange County Community College District (NOCCCD), the Orange County Region, and California. Of the 548 Orange County administration of justice students in the 2020-21 academic year, 52% (286) attended an NOCCCD college.

NOCCCD students that exited manufacturing and industrial technology programs in the 2020-21 academic year had slightly lower median annual earnings ($44,768 or $21.52 per hour) compared to all manufacturing and industrial technology students in Orange County ($44,864 or $21.57 per hour). An identical percentage of NOCCCD manufacturing and industrial technology students attained the California Insight living wage (52%) when compared to all manufacturing and industrial technology students in Orange County (52%).

Exhibit 12: Manufacturing and Industrial Technology (0956.00) Strong Workforce Program Metrics, 2020-21[4]

SWP Metric	NOCCCD	OC Region	California
SWP Students	286	548	3,716
SWP Students Who Earned 9 or More Career Education Units in the District in a Single Year	48%	42%	35%
SWP Students Who Completed a Noncredit CTE or Workforce Preparation Course	Insufficient Data	65%	21%
SWP Students Who Earned a Degree or Certificate or Attained Apprenticeship Journey Status	17	34	327
SWP Students Who Transferred to a Four-Year Postsecondary Institution (2019-20)	Insufficient Data	24	87
SWP Students with a Job Closely Related to Their Field of Study (2019-20)	86%	76%	79%
Median Annual Earnings for SWP Exiting Students	$44,768 ($21.52)	$44,864 ($21.57)	$47,028 ($22.61)
Median Change in Earnings for SWP Exiting Students	10%	4%	31%
SWP Exiting Students Who Attained the Living Wage	52%	52%	67%

Non-Community College Supply:

To comprehensively analyze the regional supply, it is crucial to include data from other institutions offering metrology programs. Exhibit 13 displays the annual and two-year average awards granted by these institutions under the related Classification of Instructional Programs (CIP) codes:

- Industrial Technology/Technician (15.0612)
- Manufacturing Engineering Technology/Technician (15.0613)
- Quality Control Technology/Technician (15.0702)

No awards were conferred under the following related CIP codes:

- Applied Engineering Technologies/Technicians (15.0001)
- Instrumentation Technology/Technician (15.0404)

[4] All SWP metrics are for 2020-21 unless otherwise noted.

- Metallurgical Technology/Technician (15.0611)
- Industrial Production Technologies/Technicians, Other (15.0699)
- Industrial Safety Technology/Technician (15.0703)
- Process Safety Technology/Technician (15.0705)

The available data covers 2019 to 2021. During this period, non-community college institutions in the region conferred an average of 85 awards annually in related programs.

Exhibit 13: Regional Non-Community College Awards, 2019-2021

CIP Code	Program	College	2019-2020 Awards	2020-2021 Awards	2-Year Award Average
15.0612	Industrial Technology / Technician	California State University-Los Angeles	48	31	40
		Supply Subtotal/Average	**48**	**31**	**40**
15.0613	Manufacturing Engineering Technology / Technician	California State University-Long Beach	0	0	0
		Supply Subtotal/Average	**0**	**0**	**0**
15.0702	Quality Control Technology / Technician	California Intercontinental University	0	0	0
		California State University-Dominguez Hills	51	40	46
		California State University-Northridge	0	0	0
		Supply Subtotal/Average	**51**	**40**	**46**
		Supply Total/Average	**99**	**71**	**85**

Regional Demographics

This section examines demographic data for Orange County community college students in manufacturing and industrial technology programs compared to the OC population, along with occupational data, to identify potential diversity and equity issues addressable by community college programs.

Note, demographic data are identical for *industrial engineering technologists and technicians* and *calibration technologists and technicians*.

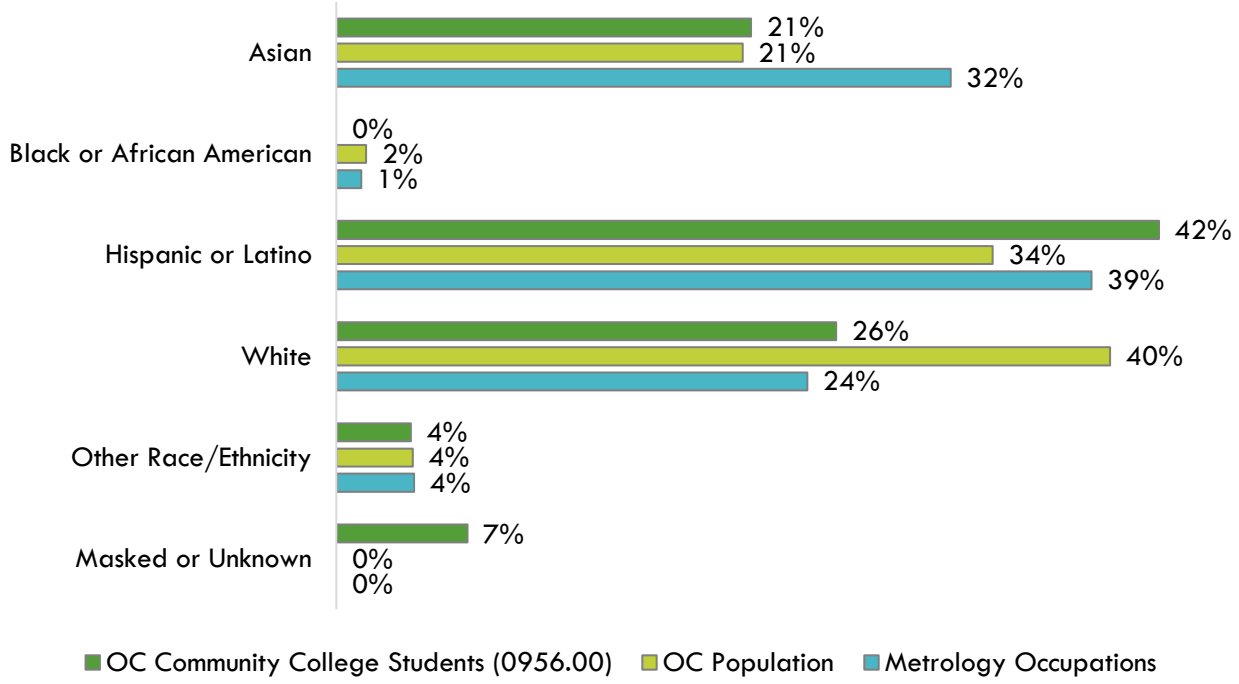
Ethnicity:

Exhibit 14 compares the ethnicity of Orange County community college students enrolled in manufacturing and industrial technology programs, the overall Orange County population, and occupation-specific data for the three metrology occupations included in this report.

The plurality of workers (39%) in these metrology occupations and community college manufacturing and industrial technology students (42%) are Hispanic or Latino; both figures are higher than the population (34%). Conversely, the plurality (40%) of the population is white, which is significantly higher than manufacturing and industrial technology community college students (26%) and workers in the field (24%). Furthermore, almost a third (32%) of workers in the field are Asian, which is higher than community college manufacturing and industrial technology students and the population (21% each).

Examining disaggregated data for each occupation (not shown), *industrial engineering technologists and technicians* and *calibration technologists and technicians* have the highest percentages of Asian workers (36%), followed closely by Hispanic or Latino workers (33%), of the three metrology occupations. Though both occupations require associate degrees as their typical entry-level education requirement, *industrial engineering technologists and technicians* offers a significantly higher entry-level wage ($28.72) than *calibration technologists and technicians* ($20.87). Furthermore, the occupation with the highest percentage of Hispanic or Latino (43%) workers is *inspectors, testers, sorters, samplers, and weighers*, which has the lowest entry-level education requirements and entry-level wages ($17.76) of the three metrology occupations.

Exhibit 14: Program and County Demographics by Ethnicity



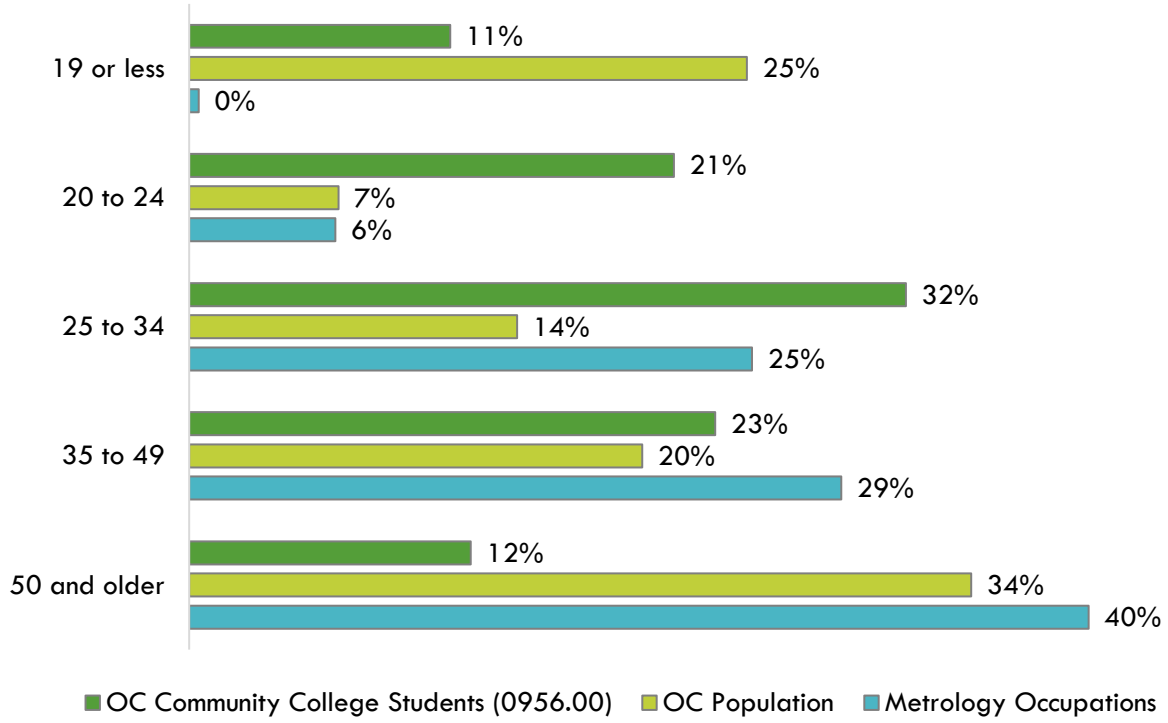
Age:

Exhibit 15 compares the age of Orange County community college students enrolled in manufacturing and industrial technology programs, the overall Orange County population, and occupation-specific data for the three metrology occupations included in this report.

Nearly 69% of workers in these metrology occupations are age 35 and older, which is higher than their representation in the population (54%) and almost double their share amongst community college manufacturing and industrial technology students (35%). Most community college manufacturing and industrial technology students are 34 or less (64%), which is significantly higher than the 31% of workers in the field and 46% of the county population in this age range.

Examining disaggregated data for each occupation (not shown), individuals 35 and older account for the majority of workers across all three metrology occupations: *industrial engineering technologists and technicians* (74%), *calibration technologists and technicians* (74%), and *inspectors, testers, sorters, samplers, and weighers* (64%). Alone, individuals 50 and older represent plurality of workers in each of these occupations: *industrial engineering technologists and technicians* (44%), *calibration technologists and technicians* (44%), and *inspectors, testers, sorters, samplers, and weighers* (36%).

Exhibit 15: Program and County Demographics by Age



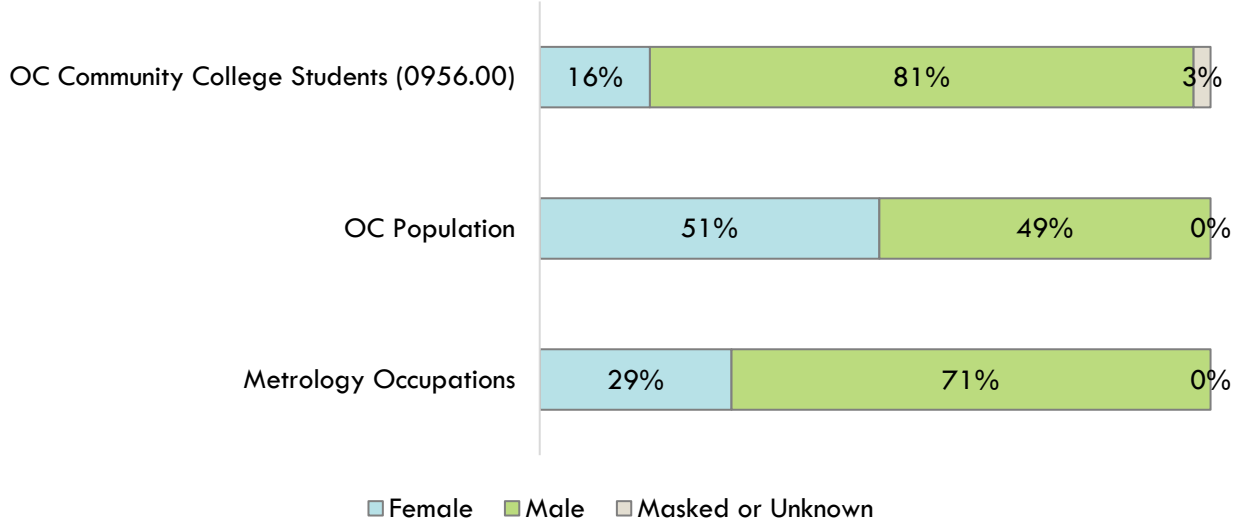
Sex:

Exhibit 16 compares the sex of Orange County community college students enrolled in manufacturing and industrial technology programs, the overall Orange County population, and occupation-specific data for these metrology occupations.

Though the population is split nearly evenly between women and men, only 16% of community college manufacturing and industrial technology students and 29% of workers in the field are women.

Examining disaggregated data for each occupation (not shown), there are significantly larger percentages of men than women across all three occupations. Notably, 82% of *industrial engineering technologists and technicians* and *calibration technologists and technicians* are men. The occupation with the largest percentage of women is *inspectors, testers, sorters, samplers, and weighers* (36%). This occupation has the lowest entry-level education requirements and entry-level wages ($17.76) of the three metrology occupations.

Exhibit 16: Program and County Demographics by Sex



Appendix A: Methodology

The OC COE prepared this report by analyzing data from occupations and education programs. Occupational data is derived from Lightcast, a labor market analytics firm that consolidates data from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS) and other government agencies. Program supply data is drawn from two systems: Taxonomy of Programs (TOP) and Classification of Instructional Programs (CIP).

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 require 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 an occupation or SOC code by analyzing the number of program completers or awards in a related TOP or CIP code. The COE developed a "supply table" with this information, which is the source of the program supply data for this report. TOP code data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP code data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS. 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 in the United States and Canada. Institutions outside of the California Community College system do not use TOP codes in their reporting systems.

Data included in this analysis represent the labor market demand for relevant positions most closely related to the proposed program as expressed by the requesting college in consultation with the OC COE. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study which can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.

All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

Appendix B: Data Sources

Data Type	Source
Occupational Projections, Wages, and Job Postings	Traditional labor market information data is sourced from Lightcast, a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics and the American Community Survey. For more information, see https://lightcast.io/
Living Wage	The living wage is derived from the Insight Center's California Family Needs Calculator, which measures the income necessary for an individual of family to afford basic expenses. The data, last updated in September 2021, assesses the cost of housing, food, child care, health care, transportation, and taxes. For more information, see: https://insightcced.org/family-needs-calculator/ The living wage for one adult in Orange County is $20.63 per hour ($42,910.40 annually). This figure is used by the CCCCO to calculate the percentage of students that attained the regional living wage.
Typical Education and Training Requirements, and Educational Attainment	The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm
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. For more information, see https://www.onetonline.org/help/online/
Educational Supply	The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions
Student Metrics and Demographics	LaunchBoard, a statewide data system supported by the California Community Colleges Chancellor's Office and hosted by Cal-PASS Plus, provides data on progress, success, employment, and earnings outcomes for California community college students. For more information, see: https://www.calpassplus.org/LaunchBoard/Home.aspx

Data Type	Source
Population and Occupation Demographics	The Census Bureau's American Community Survey (ACS) is the premier source for detailed population and housing information. For more information, see: https://www.census.gov/programs-surveys/acs Data is sourced from IPUMS USA, a database providing access to ACS and other Census Bureau data products. For more information, see: https://usa.ipums.org/usa/about.shtml

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FOR LABOR MARKET RESEARCH

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