










Quality Occupations

Labor Market Analysis: San Diego County

October 2022

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
 <p>Proceed with New Program</p>	 	 	<input checked="" type="checkbox"/> Bachelor's Degree+ <input type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate <input type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship
SUPPORT FOR PROGRAM MODIFICATION?	NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING	NUMBER OF ANNUAL JOB OPENINGS	
 	<p>MEDIUM</p> 	<p>HIGH</p> 	

This brief provides labor market information about *Quality Occupations* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. *Quality Occupations* include “Calibration Technologists and Technicians” and “Inspectors, Testers, Sorters, Samplers, and Weighers.” According to available labor market information, *Quality Occupations* in San Diego County have a labor market demand of 679 annual job openings (while average demand for a single occupation in San Diego County is 245 annual job openings), and six institutions supply 218 awards for these occupations, suggesting that there is a supply gap in the labor market. On average, entry-level wages for *Quality Occupations* are above the living wage; however, entry-level wages specifically for “Inspectors, Testers, Sorters, Samplers, and Weighers” do not meet the living wage. This brief recommends proceeding with developing a new program and supports a program modification because 1) there is a supply gap in the region and 2) there is a high number of annual job openings. Colleges should note that, according to online job postings, employers typically require a bachelor’s degree as the minimum educational requirement for “Quality Assurance” and “Quality Control” positions. More specifically, however, “Inspectors, Testers, Sorters, Samplers, and Weighers” and “Calibration Technologists and Technicians” typically require at least a high school diploma or an associate degree, respectively.

Introduction

This report provides labor market information in San Diego County for the following occupational codes in the Standard Occupational Classification (SOC)¹ system:

- **Calibration Technologists and Technicians (SOC 17-3028):** Execute or adapt procedures and techniques for calibrating measurement devices, by applying knowledge of measurement science, mathematics, physics, chemistry, and electronics, sometimes under the direction of engineering staff. Determine measurement standard suitability for calibrating measurement devices. May perform preventive maintenance on equipment. May perform corrective actions to address identified calibration problems.
- **Inspectors, Testers, Sorters, Samplers, and Weighers (SOC 51-9061):** Inspect, test, sort, sample, or weigh nonagricultural raw materials or processed, machined, fabricated, or assembled parts or products for defects, wear, and deviations from specifications. May use precision measuring instruments and complex test equipment.

While this brief primarily focuses on these two formal SOC codes for the labor market demand and supply analysis for *Quality Occupations*, it also provides additional information from online job postings for positions with the keywords “Quality Control” and “Quality Assurance.” Online job postings data provides additional information for *Quality Occupations*, which cannot be captured by traditional labor market information.

¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

Projected Occupational Demand

Between 2021 and 2026, *Quality Occupations* are projected to decrease by 271 net jobs or five percent (Exhibit 1a). Employers in San Diego County will need to hire 679 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

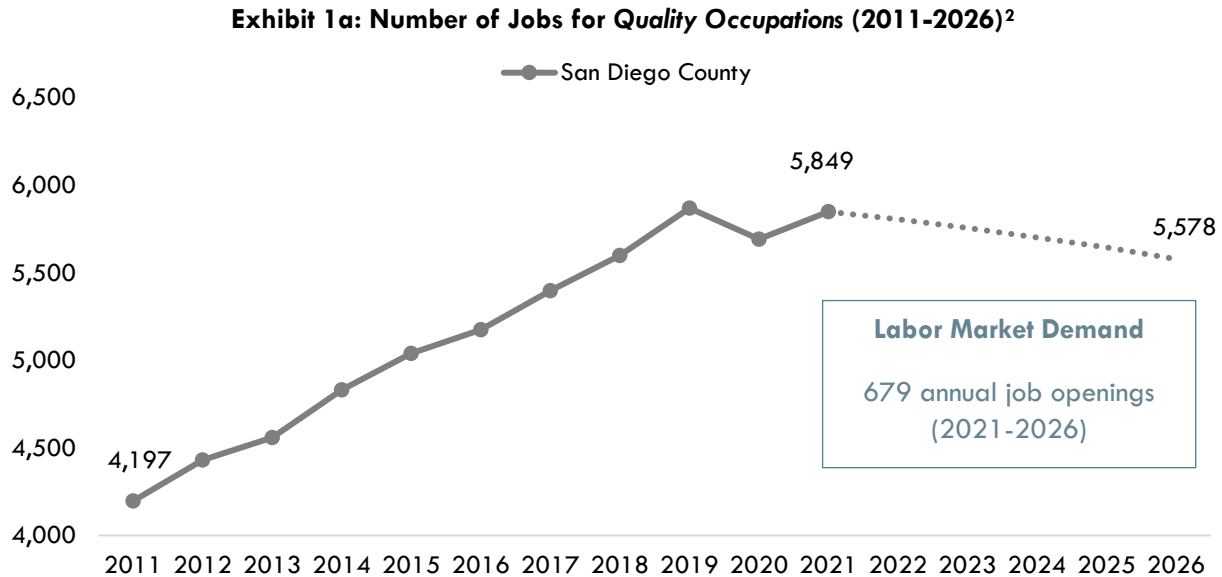


Exhibit 1b disaggregates the projected number of jobs change by occupation. “Inspectors, Testers, Sorters, Samplers, and Weighers” are projected to have the most labor market demand between 2021 and 2026, with 672 annual job openings.

Exhibit 1b: Number of Jobs for Quality Occupations in San Diego County (2021-2026)³

Occupational Title	2021 Jobs	2026 Jobs	2021 - 2026 Net Jobs Change	2021- 2026 % Net Jobs Change	Annual Job Openings (Demand)
Inspectors, Testers, Sorters, Samplers, and Weighers	5,775	5,505	-270	-5%	672
Calibration Technologists and Technicians	74	73	-1	-1%	7
Total	5,849	5,578	-271	-5%	679

² EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

³ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

Earnings

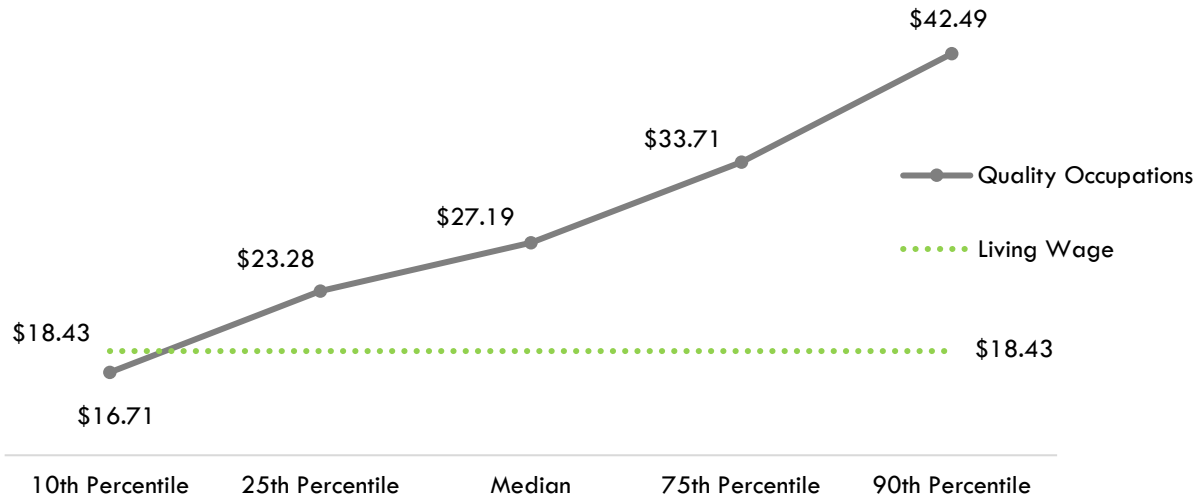
Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Quality Occupations* range from \$17.54 to \$29.01.

Exhibit 2a: Hourly Earnings for *Quality Occupations* in San Diego County⁴

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Calibration Technologists and Technicians	\$29.01	\$31.80	\$38.18
Inspectors, Testers, Sorters, Samplers, and Weighers	\$17.54	\$22.58	\$29.24

On average, the entry-level hourly earnings for *Quality Occupations* are \$23.28; this is more than the living wage for a single adult in San Diego County, which is \$18.43 per hour (Exhibit 2b).⁵

Exhibit 2b: Average Hourly Earnings⁶ for *Quality Occupations* in San Diego County⁷



⁴ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

⁵ "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. insightccd.org/family-needs-calculator/.

⁶ 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

⁷ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁸ There are four TOP codes and 12 CIP codes related to *Quality Occupations* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for *Quality Occupations*

TOP or CIP Code	TOP or CIP Program Title
TOP 0430.00	Biotechnology and Biomedical Technology
TOP 0955.00	Laboratory Science Technology
TOP 0956.00	Manufacturing and Industrial Technology
TOP 0956.80	Industrial Quality Control
CIP 15.0401	Biomedical Technology/Technician
CIP 15.0405	Robotics Technology/Technician
CIP 15.0406	Automation Engineer Technology/Technician
CIP 15.0611	Metallurgical Technology/Technician
CIP 15.0613	Manufacturing Engineering Technology/Technician
CIP 15.0702	Quality Control Technology/Technician
CIP 15.0803	Automotive Engineering Technology/Technician
CIP 15.0805	Mechanical Engineering/Mechanical Technology/Technician
CIP 26.1104	Computational Biology
CIP 41.0101	Biology Technician/Biotechnology Laboratory Technician
CIP 41.0301	Chemical Technology/Technician
CIP 50.0404	Industrial and Product Design

⁸ TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

According to TOP data, five community colleges supply the region with awards for these occupations: MiraCosta College, San Diego City College, San Diego Mesa College, San Diego Miramar College, and Southwestern College. According to CIP data, one non-community-college institution supplies the region with awards, Newschool of Architecture and Design (Exhibit 4).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Year 2017-18 through Program Year 2020-21 Average)**

TOP6 or CIP Code	TOP6 or CIP Program Title	3-Yr Annual Average CC Awards (PY18-19 to PY20-21)	Other Educational Institutions 3-Yr Annual Average Awards (PY17-18 to PY19-20)	3-Yr Total Average Supply (PY17-18 to PY20-21)
0430.00	Biotechnology and Biomedical Technology	210	0	210
	• MiraCosta	124	0	
	• San Diego Mesa	0	0	
	• San Diego Miramar	85	0	
	• Southwestern	1	0	
0956.00	Manufacturing and Industrial Technology	4	0	4
	• San Diego City	4	0	
50.0404	Industrial and Product Design	0	4	4
	• Newschool of Architecture and Design	0	4	
			Total	218

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁹ suggests that there is a **supply gap** for these occupations in San Diego County, with **679** annual openings and **218** awards. Comparatively, there are **7,543** annual openings in California and **1,307** awards, suggesting that there is also a supply gap across the state¹⁰ (Exhibit 5).

Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

	Demand (Annual Openings)	Supply¹¹ (Total Annual Average Supply)	Supply Gap or Oversupply
San Diego	679	218	461
California	7,543	1,307	6,236

Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether a program should be developed.

⁹ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

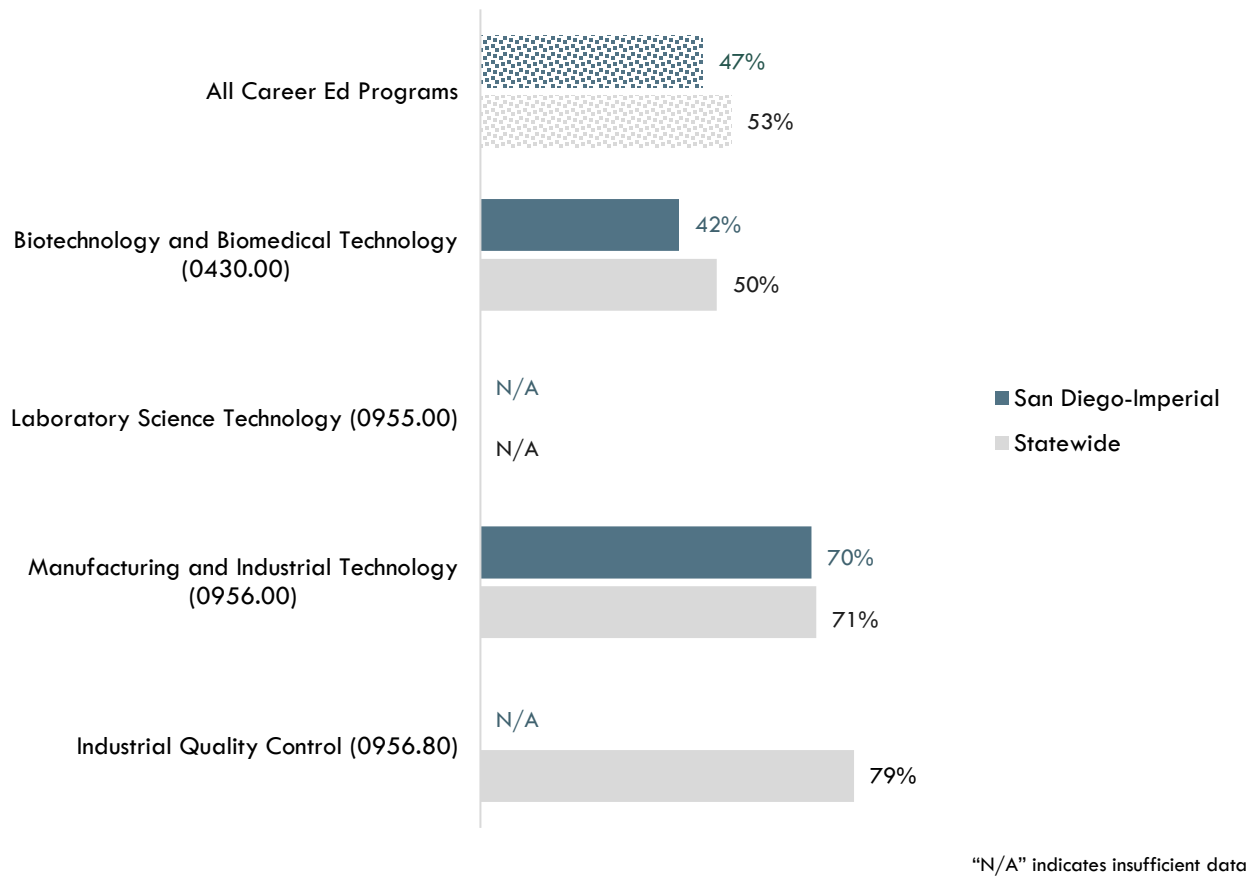
¹⁰ "Supply and Demand," Centers of Excellence Student Outcomes, <https://coecc.net/our-resources/>.

¹¹ Awards included: associate degree; award <1 year; award 1<2 years; and postsecondary awards

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 42 to 70 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Quality Occupations*, compared 50 to 79 percent statewide and 53 percent of students in Career Education programs in general across the state (Exhibit 6a).¹²

Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program, PY2018-19¹³

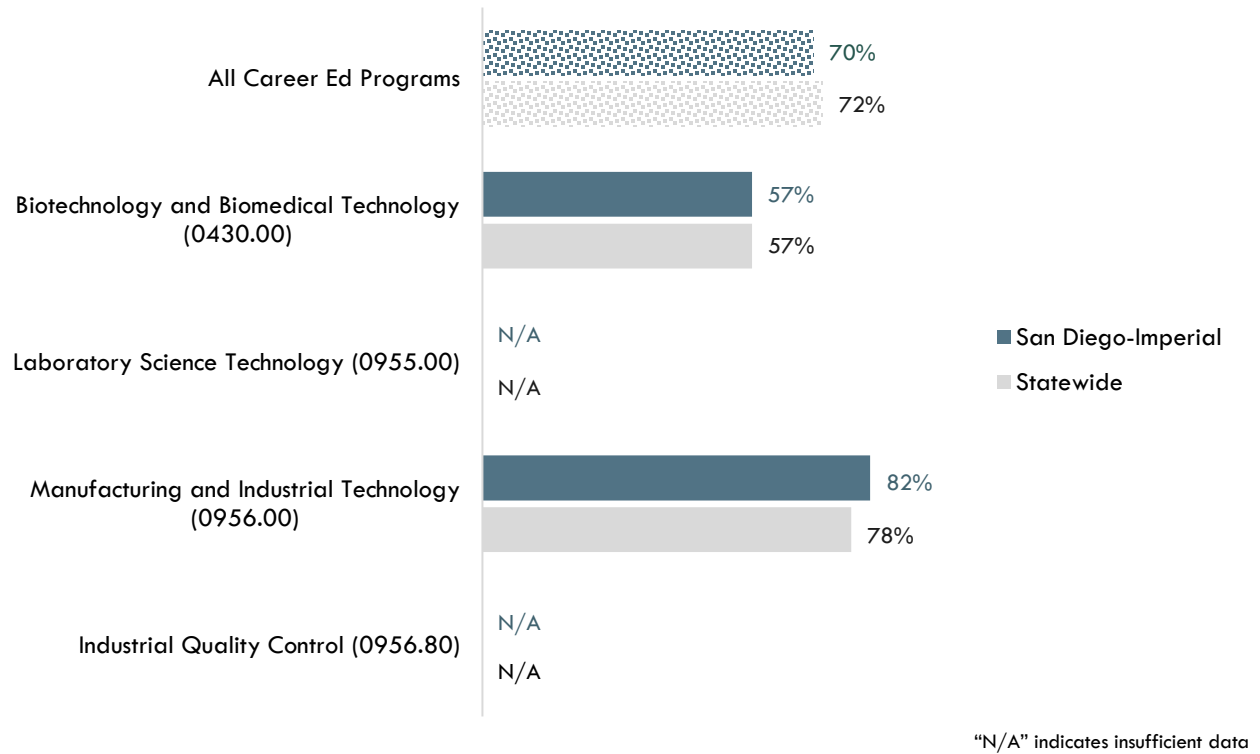


¹² "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹³ Most recent year with available data is Program Year 2018-19. Among completers and skills builders who exited, the percentage of students who attained a living wage.

According to the California Community Colleges LaunchBoard, 57 to 82 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a program related to *Quality Occupations*, compared to 57 to 78 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).¹⁴

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2017-18¹⁵



¹⁴ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

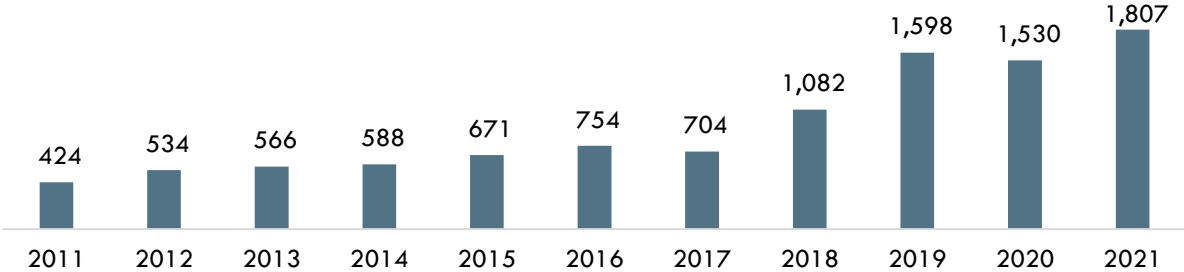
¹⁵ Most recent year with available data is Program Year 2017-18. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Online Job Postings for Quality Control and Quality Assurance

This report analyzes not only historical and projected (traditional) labor market information, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. While *Quality Occupations* include “Inspectors, Testers, Sorters, Samplers, and Weighers” and “Calibration Technologists and Technicians,” employers do not typically use these formal occupational titles when recruiting for quality-related positions. As a result, this section explores online job postings that include the keywords “Quality Assurance” and “Quality Control,” which employers commonly use to hire for these roles.

While labor market demand cannot be determined for “Quality Assurance” and “Quality Control,” there was an average of 933 online job postings per year for these occupations in San Diego County between 2011 and 2021 (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1b). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

Exhibit 7: Number of Online Job Postings for “Quality Assurance” and “Quality Control” in San Diego County (2011-2021)¹⁶



¹⁶ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2011-2021.

Top Employers

Between January 1, 2019 and December 31, 2021, the top five employers in San Diego County for “Quality Assurance” and “Quality Control” were Thermo Fisher Scientific, University of California San Diego, Abbott Laboratories, Cue Health, and Integrated Resources Incorporated based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for “Quality Assurance” and “Quality Control” in San Diego County¹⁷

Top Employers	
<ul style="list-style-type: none">• Thermo Fisher Scientific Inc.• University of California San Diego• Abbott Laboratories• Cue Health• Integrated Resources Incorporated	<ul style="list-style-type: none">• Becton Dickinson• Trilink Biotechnologies• Biolegend Inc.• Alere Incorporated• Ajinomoto

Education, Skills, and Certifications

Quality Occupations have a national educational attainment ranging from a high school diploma or equivalent to an associate degree (Exhibit 9a).

Exhibit 9a: National Educational Attainment for *Quality Occupations*¹⁸

Occupational Title	Typical Entry-Level Education
Calibration Technologists and Technicians	Associate degree
Inspectors, Testers, Sorters, Samplers, and Weighers	High school diploma or equivalent

¹⁷ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2019-2021.

¹⁸ EMSI 2022.03; QCEW, Non-QCEW, Self-Employed.

Based on online job postings between January 1, 2019 and December 31, 2021 in San Diego County, employers posted a **bachelor's degree** as the educational requirement for “Quality Assurance” and “Quality Control” (Exhibit 9b).¹⁹

Exhibit 9b: Educational Requirements for “Quality Assurance” and “Quality Control” in San Diego County²⁰

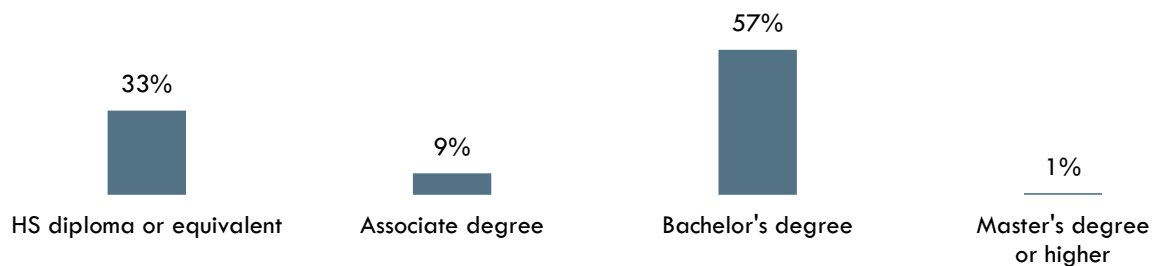


Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2019 and December 31, 2021.

Exhibit 10: Top Skills for “Quality Assurance” and “Quality Control” in San Diego County²¹

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> Quality Assurance and Control Quality Management Good Manufacturing Practices Current Good Manufacturing Practices Chemistry Batch Records Calibration Biology Biotechnology Internal Auditing Scheduling Data Entry Good Laboratory Practices Packaging Data Analysis 	<ul style="list-style-type: none"> Communication Skills Detail-Oriented Organizational Skills Problem Solving Teamwork / Collaboration Computer Literacy Writing Physical Abilities Written Communication Troubleshooting Multi-Tasking Planning Verbal / Oral Communication English Research 	<ul style="list-style-type: none"> Microsoft Excel Microsoft Word Microsoft PowerPoint Word Processing Enterprise Resource Planning SAP Microsoft Outlook Microsoft Access Microsoft Visio Adobe Acrobat Salesforce Microsoft SharePoint Microsoft Project Minitab Python

¹⁹ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2019-2021.

²⁰ “Educational Attainment for Workers 25 Years and Older by Detailed Occupation,” Bureau of Labor Statistics, last modified April 9, 2021. bls.gov/emp/tables/educational-attainment.htm.

²¹ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2019-2021.

Exhibit 11 lists the top certification that appeared in online job postings between January 1, 2019 and December 31, 2021.

Exhibit 11: Top Certification for “Quality Assurance” and “Quality Control” in San Diego County²²

Top Certification in Online Job Postings

1. Security Clearance
 2. American Society For Quality Certification
 3. Certified Quality Auditor
 4. IPC Certification
 5. Six Sigma Certification
 6. OSHA Safety 10 Hour
 7. Six Sigma Green Belt Certification
 8. Certified Quality Engineer
 9. Auditor Certification
 10. Certified Quality Technician
 11. Certified Outpatient Coding
 12. Certified Meeting Planner
 13. First Aid CPR AED
 14. Certified Quality Improvement Associate
 15. Lean Certification
-

²² Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2019-2021.

Prepared by:

Tina Ngo Bartel, Director (tngobartel@miracosta.edu)

John Edwards, Research Analyst (jedwards@miracosta.edu)

Center of Excellence (COE)

San Diego and Imperial Counties Community Colleges



Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; 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 the report 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.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.