

# Quality Control Occupations

# Labor Market Information Report

# Laney College

## Prepared by the San Francisco Bay Center of Excellence for Labor Market Research

**December 2021**

## Recommendation

Based on all available data, there appears to be an “undersupply” of Quality Control workers compared to the demand for this cluster of occupations in the Bay region and in the East Bay sub-region (Alameda, Contra Costa counties). There is a projected annual gap of about 3,675 in the Bay region and 1,052 students in the East Bay Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0956.80 Industrial Quality Control programs in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Laney College and in the region.

This report profiles Quality Control Occupations in the 12 county Bay region and in the East Bay sub-region for a proposed new program at Laney College.

Labor market information (LMI) is not available at the eight-digit SOC Code level for Quality Control Analysts (19-4099.01), therefore the data shown in Tables 1 and 2 is for Life, Physical and Social Science Technicians, All Other (at the six digit SOC level) and likely overstates demand for Quality Control Analysts. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for Quality Control Analysts (19-4099.01).

Labor market information (LMI) is not available at the eight-digit SOC Code level for Quality Control Systems Managers (11-3051.01), therefore the data shown in Tables 1 and 2 is for Industrial Production Managers (at the six digit SOC level) and likely overstates demand for Quality Control Systems Managers. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for Quality Control Systems Managers (11-3051.01).

Labor market information (LMI) is not available at the eight-digit SOC Code level for Validation Engineers (17-2112.02), therefore the data shown in Tables 1 and 2 is for Industrial Engineers (at the six digit SOC level) and likely overstates demand for Validation Engineers. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for Validation Engineers (17-2112.02).

* **Industrial Production Managers (11-3051):** Plan, direct, or coordinate the work activities and resources necessary for manufacturing products in accordance with cost, quality, and quantity specifications.
  Entry-Level Educational Requirement: Bachelor’s degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 28%
* **Industrial Engineers (17-2112):** Design, develop, test, and evaluate integrated systems for managing industrial production processes, including human work factors, quality control, inventory control, logistics and material flow, cost analysis, and production coordination. Excludes “Health and Safety Engineers, Except Mining Safety Engineers and Inspectors” (17-2111).
  Entry-Level Educational Requirement: Bachelor’s degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 18%
* **Industrial Engineering Technologists and Technicians (17-3026):** Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May perform time and motion studies on worker operations in a variety of industries for purposes such as establishing standard production rates or improving efficiency.
  Entry-Level Educational Requirement: Associate’s degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 51%
* **Life, Physical, and Social Science Technicians, All Other (19-4099):** All life, physical, and social science technicians not listed separately.
  Entry-Level Educational Requirement: Associate’s degree
  Training Requirement: None
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 37%
* **Inspectors, Testers, Sorters, Samplers, and Weighers (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.
  Entry-Level Educational Requirement: High school diploma or equivalent
  Training Requirement: Moderate-term on-the-job training
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 37%

## Occupational Demand

**Table 1. Employment Outlook for Quality Control Occupations in Bay Region**

| **Occupation** | **2020 Jobs** | **2025 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Industrial Production Managers | 5,972 | 6,095 | 123 | 2% | 2,378 | 476 | $54 | $92 |
| Industrial Engineers | 8,172 | 8,875 | 702 | 9% | 3,843 | 769 | $48 | $81 |
| Industrial Engineering Technologists and Technicians | 1,688 | 1,798 | 110 | 7% | 1,002 | 200 | $28 | $56 |
| Life, Physical, and Social Science Technicians, All Other | 3,517 | 3,707 | 190 | 5% | 2,618 | 524 | $26 | $56 |
| Inspectors, Testers, Sorters, Samplers, and Weighers | 13,417 | 12,720 | -696 | -5% | 8,531 | 1,706 | $18 | $45 |
| **Total** | **32,766** | **33,195** | **429** | **1%** | **18,372** | **3,675** |  |  |
| Source: EMSI 2021.3 |

**Bay Region includes:** Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for Quality Control Occupations in East Bay Sub-region**

| **Occupation** | **2020 Jobs** | **2025 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Industrial Production Managers | 1,832 | 1,869 | 37 | 2% | 724 | 145 | $53 | $91 |
| Industrial Engineers | 1,630 | 1,877 | 246 | 15% | 911 | 182 | $42 | $75 |
| Industrial Engineering Technologists and Technicians | 640 | 664 | 23 | 4% | 354 | 71 | $26 | $52 |
| Life, Physical, and Social Science Technicians, All Other | 1,003 | 1,038 | 34 | 3% | 716 | 143 | $23 | $51 |
| Inspectors, Testers, Sorters, Samplers, and Weighers | 4,033 | 3,837 | -195 | -5% | 2,557 | 511 | $16 | $43 |
| **Total** | **9,138** | **9,285** | **147** | **2%** | **5,262** | **1,052** |  |  |
| Source: EMSI 2021.3 |

**East Bay Sub-Region includes:** Alameda, Contra Costa Counties

### Job Postings in Bay Region and East Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (Nov 2020 - Oct 2021)**

| **Occupation** | **Bay Region** | **East Bay** |
| --- | --- | --- |
| Inspectors, Testers, Sorters, Samplers, and Weighers | 4,462 | 1,743 |
| Quality Control Analysts | 3,193 | 1,266 |
| Industrial Engineering Technicians | 2,551 | 1,063 |
| Quality Control Systems Managers | 2,382 | 745 |
| Industrial Production Managers | 2,185 | 741 |
| Industrial Engineers | 1,838 | 554 |
| Human Factors Engineers and Ergonomists | 132 | 23 |
| Life, Physical, and Social Science Technicians, All Other | 52 | 11 |
| Remote Sensing Technicians | 39 | 4 |
| Precision Agriculture Technicians | 35 | 14 |
| Source: Burning Glass |

**Table 4a. Top Job Titles for Quality Control Occupations for latest 12 months (Nov 2020 - Oct 2021) Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Maintenance Technician | 499 | Test Engineer | 166 |
| Production Manager | 367 | Quality Technician | 149 |
| Quality Inspector | 346 | Quality Assurance Inspector | 126 |
| Quality Assurance Specialist | 278 | Qc Inspector | 110 |
| Quality Control Inspector | 272 | Quality Control Analyst | 102 |
| Quality Assurance Manager | 264 | Qc Technician | 84 |
| Quality Assurance Technician | 216 | Automotive Maintenance Technician | 80 |
| Quality Control Technician | 197 | Quality Analyst | 74 |
| Quality Manager | 169 | Supplier Quality Engineer | 73 |
| Source: Burning Glass |

**Table 4b. Top Job Titles for Quality Control Occupations for latest 12 months (Nov 2020 - Oct 2021) East Bay Sub-Region**

| **Title** | **East Bay** | **Title** | **East Bay** |
| --- | --- | --- | --- |
| Maintenance Technician | 206 | Quality Technician | 67 |
| Quality Inspector | 168 | Qc Inspector | 57 |
| Production Manager | 136 | Quality Control Analyst | 56 |
| Quality Control Inspector | 115 | Qc Technician | 49 |
| Quality Assurance Specialist | 113 | Test Engineer | 36 |
| Quality Assurance Technician | 88 | Quality Specialist | 34 |
| Quality Control Technician | 87 | Maintenance Technician III | 33 |
| Quality Assurance Manager | 85 | Quality Assurance Inspector | 33 |
| Quality Manager | 73 | Automotive Maintenance Technician | 29 |
| Source: Burning Glass |

## Industry Concentration

**Table 5. Industries hiring Quality Control Workers in Bay Region**

| **Industry – 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2020)** | **Jobs in Industry (2025)** | **% Change (2020-25)** | **% Occupation Group in Industry (2020)** |
| --- | --- | --- | --- | --- |
| Semiconductor and Related Device Manufacturing | 2,605 | 2,459 | -6% | 8% |
| Electronic Computer Manufacturing | 2,194 | 2,456 | 12% | 7% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) | 1,540 | 1,672 | 9% | 5% |
| Pharmaceutical Preparation Manufacturing | 1,403 | 1,254 | -11% | 4% |
| Research and Development in Biotechnology (except Nanobiotechnology) | 948 | 1,185 | 25% | 3% |
| Automobile Manufacturing | 789 | 945 | 20% | 2% |
| Temporary Help Services | 962 | 907 | -6% | 3% |
| Surgical and Medical Instrument Manufacturing | 789 | 889 | 13% | 2% |
| Testing Laboratories | 813 | 748 | -8% | 3% |
| Semiconductor Machinery Manufacturing | 663 | 733 | 11% | 2% |
| Source: EMSI 2021.3 |

**Table 6. Top Employers Posting Quality Control Occupations in Bay Region and East Bay Sub-Region (Nov 2020 - Oct 2021)**

| **Employer** | **Bay** | **Employer** | **East Bay** |
| --- | --- | --- | --- |
| Lucid Motors Inc | 252 | Lucid Motors Inc | 196 |
| Jabil Inc | 209 | Jabil Inc | 176 |
| Tesla | 189 | Tesla | 175 |
| Danaher Corporation | 145 | Boehringer Ingelheim | 69 |
| Thermo Fisher Scientific Inc | 131 | Danaher Corporation | 58 |
| Pacific Gas and Electric Company | 107 | Thermo Fisher Scientific Inc | 52 |
| Apple Inc. | 102 | Pacific Gas and Electric Company | 51 |
| Anthem Blue Cross | 90 | Human Bees | 47 |
| Abbott Laboratories | 83 | Bayer Corporation | 38 |
| Psg Global Solutions | 80 | Psg Global Solutions | 35 |
| Source: Burning Glass |

## Educational Supply

There are no community colleges in the Bay Region issuing awards on average annually (last 3 years ending 2018-19) on TOP 0956.80 Industrial Quality Control. In the East Bay Sub-Region, there are no community colleges that issued awards on average annually (last 3 years) on this TOP code.

## Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 3,675 annual openings for the Quality Control occupational cluster and no annual (3-year average) awards for an annual undersupply of 3,675 students. In the East Bay Sub-Region, there is also a gap with 1,052 annual openings and no annual (3-year average) awards for an annual undersupply of 1,052 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0956.80 Industrial Quality Control**

| **Metric Outcomes** | **Bay All CTE Programs** | **Laney All CTE Programs** | **State 0956.80** | **Bay 0956.80** | **East Bay 0956.80** | **Laney College 0956.80** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study | 73% | 70% | N/A | N/A | N/A | N/A |
| Median Annual Earnings for SWP Exiting Students | $44,575 | $39,109 | $70,911 | N/A | N/A | N/A |
| Median Change in Earnings for SWP Exiting Students | 30% | 31% | 128% | N/A | N/A | N/A |
| Exiting Students Who Attained the Living Wage | 53% | 50% | 75% | N/A | N/A | N/A |
| Source: Launchboard Strong Workforce Program Median of 2016-18. |

## Skills, Certifications and Education

**Table 9. Top Skills for Quality Control Occupations in Bay Region (Nov 2020 - Oct 2021)**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| Quality Assurance and Control | 7,860 | Cleaning | 927 |
| Quality Management | 4,354 | Predictive/Preventative Maintenance | 894 |
| Repair | 2,387 | Biotechnology | 880 |
| Scheduling | 2,251 | Customer Service | 874 |
| Good Manufacturing Practices (GMP) | 2,244 | Personal Protective Equipment (PPE) | 862 |
| Packaging | 1,651 | Data Analysis | 858 |
| Project Management | 1,573 | Product Development | 845 |
| Current Good Manufacturing Practices (CGMP) | 1,542 | Six Sigma | 845 |
| Budgeting | 1,343 | Internal Auditing | 816 |
| Manufacturing Processes | 1,217 | SAP | 798 |
| Calibration | 1,075 | Key Performance Indicators (KPIs) | 787 |
| Chemistry | 1,066 | Root Cause Analysis | 778 |
| Process Improvement | 1,051 | Data Entry | 764 |
| Production Management | 1,022 | Staff Management | 749 |
| Source: Burning Glass |

**Table 10. Certifications for Quality Control Occupations in the Bay Region (Nov 2020 - Oct 2021)**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Driver's License | 1,382 | Project Management Professional (PMP) | 71 |
| American Society For Quality (ASQ) Certification | 320 | Certified Quality Improvement Associate (CQIA) | 71 |
| Certified Quality Auditor (CQA) | 268 | OSHA Forklift Certification | 70 |
| Certified Quality Engineer (CQE) | 241 | Auditor Certification | 70 |
| IPC Certification | 213 | Certified Manager of Quality Organizational Excellence (CMQ/OE) | 62 |
| Six Sigma Certification | 164 | Cdl Class C | 62 |
| Project Management Certification | 145 | First Aid Cpr Aed | 55 |
| Security Clearance | 96 | Six Sigma Green Belt Certification | 52 |
| Six Sigma Black Belt Certification | 75 | Lean Six Sigma Certification | 45 |
| Global Food Safety Initiative (GFSI) | 75 | Automotive Service Excellence (ASE) Certification | 45 |
| Source: Burning Glass |

*Note: 80% of records have been excluded because they do not include a certification. As a result, the chart above may not be representative of the full sample.*

**Table 11. Education Requirements for Quality Control Occupations in Bay Region**

| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **Percent 12 Mos. Postings** |
| --- | --- | --- |
| High school or vocational training | 4,010 | 34% |
| Associate's degree | 566 | 5% |
| Bachelor's degree | 7,114 | 61% |
| Source: Burning Glass |

## Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

## Sources

O\*Net Online
Labor Insight/Jobs (Burning Glass)
Economic Modeling Specialists International (EMSI)
CTE LaunchBoard www.calpassplus.org/Launchboard/
Statewide CTE Outcomes Survey
Employment Development Department Unemployment Insurance Dataset
Living Insight Center for Community Economic Development
Chancellor’s Office MIS system

## Contacts

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