**Signal Technician Occupations**

**Labor Market Information Report**

**Santa Rosa Junior College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

May 2020

# Recommendation

Based on all available data, there appears to be an undersupply of Signal Technician workers compared to the demand for this cluster of occupations in the Bay region and in the North Bay sub-region (Solano, Marin, Napa, and Sonoma Counties). There is a projected annual gap of about 259 students in the Bay region and 45 students in the North Bay Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0935.00 - Electro-Mechanical Technology 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 Santa Rosa Junior College and in the region.

# Introduction

This report profiles Signal Technician Occupations in the 12 county Bay region and in the North Bay sub-region for a proposed new program at Santa Rosa Junior College.

|  |
| --- |
| * **Electrical and Electronics Repairers, Commercial and Industrial Equipment (SOC 49-2094):** Repair, test, adjust, or install electronic equipment, such as industrial controls, transmitters, and antennas. Excludes “Avionics Technicians" (49-2091), "Electronic Equipment Installers and Repairers, Motor Vehicles" (49-2096), and "Electrical and Electronics Installers and Repairers, Transportation Equipment" (49-2093).
 |
| Entry-Level Educational Requirement: Postsecondary nondegree *award* |
| Training Requirement: Long-term *on-the-job training* |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 51% |
|  |
| * **Control and Valve Installers and Repairers, Except Mechanical Door (SOC** **49-9012):** Install, repair, and maintain mechanical regulating and controlling devices, such as electric meters, gas regulators, thermostats, safety and flow valves, and other mechanical governors.
 |
| 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: 43*%* |
|  |
| * **Electric Motor, Power Tool, and Related Repairers (SOC 49-2092):** Repair, maintain, or install electric motors, wiring, or switches.
 |
| 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: 46*%* |
|  |
| * **Signal and Track Switch Repairers (SOC 49-9097):** Install**,** inspect, test, maintain, or repair electric gate crossings, signals, signal equipment, track switches, section lines, or intercommunications systems within a railroad system.
 |
| 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: 36*%* |

# Occupational Demand

**Table 1. Employment Outlook for Signal Technician Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2019 Jobs | 2024 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Electrical and Electronics Repairers, Commercial and Industrial Equipment |  1,651  |  1,694  | 44 | 3% |  794  |  159  | $20.62 | $28.35 |
| Control and Valve Installers and Repairers, Except Mechanical Door |  698  |  748  | 50 | 7% |  364  |  73  | $26.12 | $34.58 |
| Electric Motor, Power Tool, and Related Repairers |  142  |  146  | 4 | 3% |  84  |  17  | $17.62 | $22.45 |
| Signal and Track Switch Repairers |  91  |  93  | 2 | 2% |  53  |  11  | $38.29 | $47.83 |
| **TOTAL** |  **2,582**  |  **2,681**  | **99** | **4%** |  **1,295**  |  **259**  | **$22.56** | **$30.40** |

*Source: EMSI 2019.4*

**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 Signal Technician Occupations in North Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2019 Jobs | 2024 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Electrical and Electronics Repairers, Commercial and Industrial Equipment |  268  |  276  | 8 | 3% |  130  |  26  | $30.88 | $37.35 |
| Control and Valve Installers and Repairers, Except Mechanical Door |  152  |  157  | 5 | 3% |  74  |  15  | $24.74 | $31.53 |
| Electric Motor, Power Tool, and Related Repairers |  35  |  37  | 2 | 6% |  22  |  4  | $17.95 | $22.80 |
| Signal and Track Switch Repairers |  16  |  15  | 0 | -1% |  <10  |  Insf. Data  | $33.44 | $40.90 |
| **TOTAL** |  **470**  |  **486**  | **15** | **3%** |  **225**  |  **45**  | **$28.03** | **$34.52** |

*Source: EMSI 2019.4*

**North Bay Sub-Region** includes Solano, Marin, Napa, and Sonoma

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

**Table 3. Number of Job Postings by Occupation for latest 12 months (April 2019 - March 2020)**

| Occupation | Bay Region | North Bay |
| --- | --- | --- |
|  Control and Valve Installers and Repairers, Except Mechanical Door | 188 | 31 |
|  Electric Motor, Power Tool, and Related Repairers | 42 | 0 |
|  Signal and Track Switch Repairers | 17 | 0 |
|  Electrical and Electronics Repairers, Commercial and Industrial Equipment | 11 | 1 |
|  **TOTAL** | **258** | **32** |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Signal Technician Occupations for latest 12 months (April 2019 - March 2020) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Technician | 20 | Signal Maintainer | 4 |
| Device Tester | 15 | Ice Technician | 4 |
| Mechanic | 14 | Android Tester | 4 |
| Controls Technician | 13 | Service Connector | 3 |
| Cam Technician | 13 | Motor Repair | 3 |
| Service Technician | 12 | I & E Technician | 3 |
| Instrumentation Technician | 11 | Claires Third Key Crossing | 3 |
| HVAC Technician | 11 | Ads Measurement Lead, Mid Market | 3 |
| Electrical Technician | 10 | Valve Technician | 2 |
| Specialist | 8 | Underground Utilities | 2 |
| Valve Technician | 5 | Transmissimanager | 2 |
| Tester | 5 | Technician, Information And Technology Industry | 2 |
| String Trio | 5 | Summer Camp -Teach Kids To Use Power Tools To Build Projects | 2 |
| Area Controls Technician | 5 | Shopify Recharge | 2 |

**Table 4b. Top Job Titles for Signal Technician Occupations for latest 12 months (April 2019 - March 2020) North Bay Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | North Bay | Common Title | North Bay |
| Mechanic | 10 | HVAC Technician | 2 |
| Valve Technician | 7 | Controls Technician, Plant, Information And Technology Industry | 2 |
| Controls Technician | 5 | Extinguisher, Service | 1 |
| Specialist | 2 | Controls Technician, Food, Beverage | 1 |
| Meter Specialist | 2 |  |  |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Signal Technician Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2019) | Jobs in Industry (2022) | % Change (2019-24) | % Occupation Group in Industry (2019) |
| Natural Gas Distribution (221210) | 360 | 369 | 3% | 14% |
| Federal Government, Military (901200) | 204 | 197 | -3% | 8% |
| Local Government, Excluding Education and Hospitals (903999) | 187 | 198 | 6% | 7% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 120 | 116 | -3% | 5% |
| Electrical Contractors and Other Wiring Installation Contractors (238210) | 102 | 114 | 12% | 4% |
| Electronic Computer Manufacturing (334111) | 96 | 106 | 10% | 4% |
| Semiconductor and Related Device Manufacturing (334413) | 95 | 84 | -12% | 4% |
| Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals (334515) | 54 | 48 | -11% | 2% |
| Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance (811310) | 53 | 59 | 11% | 2% |
| Custom Computer Programming Services (541511) | 47 | 60 | 28% | 2% |
| Other Electronic and Precision Equipment Repair and Maintenance (811219) | 35 | 39 | 11% | 1% |
| Plumbing, Heating, and Air-Conditioning Contractors (238220) | 35 | 41 | 17% | 1% |
| Analytical Laboratory Instrument Manufacturing (334516) | 34 | 32 | -6% | 1% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 33 | 35 | 6% | 1% |
| Rail transportation (482110) | 31 | 29 | -6% | 1% |
| Electromedical and Electrotherapeutic Apparatus Manufacturing (334510) | 30 | 34 | 13% | 1% |
| Computer and Computer Peripheral Equipment and Software Merchant Wholesalers (423430) | 28 | 23 | -18% | 1% |
| Computer Systems Design Services (541512) | 28 | 34 | 21% | 1% |

*Source: EMSI 2020.1*

**Table 6. Top Employers Posting Signal Technician Occupations in Bay Region and North Bay Sub-Region (April 2019 - March 2020)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | North Bay |
| Abbott Laboratories | 9 | Emerson Electric Company | 3 | Constellation Brands Inc | 6 |
| Project Ember | 6 | Claires | 3 | Emerson Electric Co | 3 |
| Johnson Controls Inc | 6 | Chemtrade | 3 | Abbott Laboratories | 3 |
| Constellation Brands Inc | 6 | WL Gore Company | 2 | Jones Lang Lasalle Inc | 2 |
| Siemens | 5 | Virtusa | 2 | Johnson Controls Inc | 2 |
| Carnival Entertainment | 5 | The Valley Transportation Authority | 2 | Hellotech | 2 |
| Pinterest | 4 | The Bergaila Companies | 2 | Vallejo Fire Extinguisher | 1 |
| Oakland Ice Center | 4 | Tesla Motors | 2 | The Family Coppola | 1 |
| Google Inc. | 4 | Statcomm Incorporated | 2 | Team Industrial Services Inc | 1 |
| Device Cycles | 4 | Santa Clara Valley Water District | 2 | Six Flags Inc | 1 |
| Blue Apron | 4 | Outsource | 2 | City Vallejo | 1 |
| Western Digital | 3 | Mac Incorporated | 2 | City Of Santa Rosa | 1 |
| Tesla | 3 | Jones Lang Lasalle Inc | 2 | Bay Valve Service Inc | 1 |
| Sunbelt Controls | 3 | Flow Masters Plumbing | 2 | Astro Pak Corporation | 1 |
| Sloan Companies | 3 | Dahl Beck Electric | 2 |  |  |
| Santa Clara Valley Transportation Authority | 3 | Cowles Search | 2 |  |  |
| Hellotech | 3 | CN | 2 |  |  |

*Source: Burning Glass*

# Educational Supply

There are no community colleges in the Bay Region issuing awards on average annually (last 3 years ending 2017-18) on TOP 0935.00-Electro-Mechanical Technology. There are no Other Educational Institutions in the Bay Region issuing awards on average annually (last 3 years ending 2016-17) on TOP 0935.00-Electro-Mechanical Technology.

# Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 259 annual openings for the Signal Technician occupational cluster and no annual (3-year average) awards for an annual undersupply of 259 students. In the North Bay Sub-Region, there is also a gap with 45 annual openings and no annual (3-year average) awards for an annual undersupply of 45 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0935.00 - Electro-Mechanical Technology**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay (All CTE Programs) | Santa Rosa Junior College (All CTE Programs) | State (0935.00) | Bay (0935.00) | North Bay (0935.00) | Santa Rosa Junior College (0935.00) |
| % Employed Four Quarters After Exit | 74% | 76% | 67% | 59% | n/a | n/a |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $9,839 | $10,426 | $9,833 | n/a | n/a |
| Median % Change in Earnings | 46% | 50% | 28% | 56% | n/a | n/a |
| % of Students Earning a Living Wage | 63% | 62% | 64% | 63% | n/a | n/a |

*Source: Launchboard Pipeline (version available on 4/29/20)*

# Skills, Certifications and Education

**Table 9. Top Skills for Signal Technician Occupations in Bay Region (April 2019 - March 2020)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Repair | 124 | Welding | 21 | Electrical Devices | 11 |
| Customer Service | 52 | Commissioning | 18 | Personal Protective Equipment (PPE) | 11 |
| Schematic Diagrams | 41 | Human Machine Interface (HMI) | 16 | SCADA | 11 |
| Predictive / Preventative Maintenance | 30 | Programmable Logic Controller (PLC) Programming | 16 | Electronics Industry Knowledge | 10 |
| Scheduling | 30 | Project Management | 16 | Fiber Optics | 10 |
| HVAC | 28 | Electrical Work | 15 | Hand Trucks | 10 |
| Hand Tools | 28 | Occupational Health and Safety | 14 | Power Distribution | 10 |
| Lifting Ability | 27 | Computer Installation and Setup | 13 | Surveillance | 10 |
| Power Tools | 26 | Electrical Diagrams / Schematics | 13 | Android Testing | 9 |
| Wiring | 26 | Plumbing | 13 | Ethernet | 9 |
| Calibration | 25 | Automation Systems | 12 | Industrial Engineering Industry Expertise | 9 |
| Machinery | 25 | Electrical Systems | 12 | Process Control | 9 |
| Operations Management | 23 | Ladder Logic | 12 | Quality Assurance and Control | 9 |
| Customer Contact | 22 | Siemens Nixdorf Hardware | 12 | Spreadsheets | 9 |
| Test Equipment | 22 | Cleaning | 11 | Basic Mathematics | 8 |

*Source: Burning Glass*

**Table 10. Certifications for Signal Technician Occupations in Bay Region (April 2019 - March 2020)**

Note: 72% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |  |  |
| --- | --- | --- | --- |
| Certification | Postings | Certification | Postings |
| Driver's License | 57 | Security Clearance | 1 |
| Cdl Class C | 6 | Occupational Safety and Health Administration Certification | 1 |
| Electrician Certification | 4 | Hazwoper | 1 |
| Plc Programming | 3 | Conflict Resolution | 1 |
| IPC Certification | 2 | Certified Field Service Professional | 1 |
| Hazardous Materials Certification | 2 | CDL Class A | 1 |
| EPA CFC/HCFC Certification | 2 | Backflow Prevention Certification | 1 |
| Wastewater Treatment Plant Operator | 1 | Back-Flow Prevention Certificate | 1 |

*Source: Burning Glass*

**Table 11. Education Requirements for Signal Technician Occupations in Bay Region**

Note: 47% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

|  |  |  |
| --- | --- | --- |
| Education (minimum advertised) | Latest 12 Mos. Postings | Percent 12 Mos. Postings |
| High school or vocational training | 97 | 71% |
| Associate Degree | 30 | 22% |
| Bachelor’s Degree or Higher | 8 | 7% |

*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/](http://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

For more information, please contact:

* Doreen O’Donovan, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), doreen@baccc.net or (831) 479-6481
* John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544