



# Labor Market Analysis for Program Recommendation Engineering Technology Occupations Cabrillo College

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

Based on all available data, there appears to be an “undersupply” of Engineering Technology workers compared to the demand for this cluster of occupations in the Bay region and in the SC-Monterey sub-region (Monterey, San Benito, Santa Cruz counties). There is a projected annual gap of about 347 students in the Bay region and 4 students in the SC-Monterey Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0924.00 Engineering Technology, General (requires Trigonometry) 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 Cabrillo College and in the region.

This report profiles Engineering Technology Occupations in the 12 county Bay region and in the SC-Monterey sub-region for a proposed new Engineering Technology Certificate of Achievement at Cabrillo College.

- **Drafters, All Other (17-3019):** All drafters not listed separately.  
Entry-Level Educational Requirement: Associate’s degree  
Training Requirement: None  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 58%
- **Civil Engineering Technologists and Technicians (17-3022):** Apply theory and principles of civil engineering in planning, designing, and overseeing construction and maintenance of structures and facilities under the direction of engineering staff or physical scientists.  
Entry-Level Educational Requirement: Associate’s degree  
Training Requirement: None  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 51%
- **Electro-Mechanical and Mechatronics Technologists and Technicians (17-3024):** Operate, test, maintain, or calibrate unmanned, automated, servo-mechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment at worksites, such as oil rigs, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.  
Entry-Level Educational Requirement: Associate’s degree  
Training Requirement: None  
Percentage of Community College Award Holders or Some Postsecondary Coursework: 51%

- 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%

## Occupational Demand

**Table 1. Employment Outlook for Engineering Technology 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 |
|---|--------------|--------------|-------------|---------------|---------------------|-----------------|--------------------|--------------------|
| Drafters, All Other   | 440          | 483          | 43          | 10%           | 310                 | 62              | \$25               | \$31               |
| Civil Engineering Technologists and Technicians                   | 1,458        | 1,314        | -145        | -10%          | 663                 | 133             | \$31               | \$42               |
| Electro-Mechanical and Mechatronics Technologists and Technicians | 550          | 490          | -60         | -11%          | 250                 | 50              | \$21               | \$30               |
| Industrial Engineering Technologists and Technicians              | 1,059        | 1,131        | 72          | 7%            | 661                 | 132             | \$27               | \$32               |
| <b>Total</b>  | <b>3,507</b> | <b>3,418</b> | <b>-89</b>  | <b>-3%</b>    | <b>1,884</b>        | <b>377</b>      |                    |                    |

Source: EMSI 2022.3

**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 Engineering Technology Occupations in SC-Monterey 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 |
|---|------------|------------|-------------|---------------|---------------------|-----------------|--------------------|--------------------|
| Drafters, All Other   | <10        | <10        | <10         | 0%            | 0                   | <10             | N/A                | N/A                |
| Civil Engineering Technologists and Technicians                   | 96         | 108        | 13          | 13%           | 63                  | 13              | \$23               | \$30               |
| Electro-Mechanical and Mechatronics Technologists and Technicians | <10        | <10        | <10         | 0%            | <10                 | <10             | N/A                | N/A                |
| Industrial Engineering Technologists and Technicians              | 27         | 47         | 20          | 74%           | 39                  | 8               | \$25               | \$33               |
| <b>Total</b>  | <b>123</b> | <b>156</b> | <b>33</b>   | <b>27%</b>    | <b>102</b>          | <b>21</b>       |                    |                    |

Source: EMSI 2022.3

**SC-Monterey Sub-Region includes:** Monterey, San Benito, Santa Cruz Counties

**Job Postings in Bay Region and SC-Monterey Sub-Region**

**Table 3. Number of Job Postings by Occupation for latest 12 months (Nov. 2021 – Oct. 2022)**

| Occupation                         | Bay Region | SC-Monterey |
|------------------------------------|------------|-------------|
| Industrial Engineering Technicians | 3,134      | 192         |
| Drafters, All Other                | 1,131      | 31          |
| Electro-Mechanical Technicians     | 879        | 38          |
| Civil Engineering Technicians      | 531        | 43          |

Source: Burning Glass

**Table 4a. Top Job Titles for Engineering Technology Occupations for latest 12 months (Nov. 2021 – Oct. 2022)**

**Bay Region**

| Title                                  | Bay | Title                            | Bay |
|--|-----|----------------------------------|-----|
| Maintenance Technician                 | 646 | Cad Designer                     | 50  |
| Maintenance Technician III             | 111 | Calibration Technician           | 49  |
| Automotive Maintenance Technician      | 102 | Electro Mechanical Assembler     | 46  |
| Field Technician                       | 94  | Equipment Maintenance Technician | 45  |
| Maintenance Worker                     | 59  | Occupancy Planner                | 43  |
| Industrial Maintenance Technician      | 55  | Cad Drafter                      | 34  |
| Equipment Maintenance Engineer         | 53  | Cad Engineer                     | 33  |
| Maintenance Technician II              | 53  | Engineering Technician           | 32  |
| Automotive Adas Calibration Technician | 50  | Maintenance Technician I         | 32  |

Source: Burning Glass

**Table 4b. Top Job Titles for Engineering Technology Occupations for latest 12 months (Nov. 2021 – Oct. 2022)**

**SC-Monterey Sub-Region**

| Title                                  | SC-Monterey | Title                               | SC-Monterey |
|--|-------------|-------------------------------------|-------------|
| Maintenance Technician                 | 28          | Facility Maintenance Worker         | 5           |
| Field Technician                       | 16          | Maintenance Technician III - Jps    | 4           |
| Maintenance Aide Seasonal              | 12          | Premise Technician                  | 4           |
| Engineering Technician                 | 9           | Water Resources Technician          | 4           |
| Automotive Adas Calibration Technician | 8           | Avionics Maintenance Technician     | 3           |
| Park Maintenance Worker I              | 7           | Caltrans Highway Maintenance Worker | 3           |

|                                   |   |                                  |   |
|-----------------------------------|---|----------------------------------|---|
| Automotive Maintenance Technician | 6 | Maintenance Engineering Lead     | 3 |
| Instrument Processing Technician  | 6 | Park Maintenance Worker II       | 3 |
| Cad Drafter                       | 5 | Senior Maintenance Aide Seasonal | 3 |

Source: Burning Glass

## Industry Concentration

**Table 5. Industries hiring Engineering Technology 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) |
|--|-------------------------|-------------------------|--------------------|---------------------------------------|
| Engineering Services   | 818                     | 693                     | -15%               | 21%                                   |
| Local Government, Excluding Education and Hospitals  | 275                     | 292                     | 6%                 | 9%                                    |
| Semiconductor and Related Device Manufacturing   | 216                     | 211                     | -2%                | 6%                                    |
| State Government, Excluding Education and Hospitals  | 247                     | 206                     | -16%               | 6%                                    |
| Electronic Computer Manufacturing  | 159                     | 177                     | 11%                | 5%                                    |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) | 107                     | 114                     | 7%                 | 3%                                    |
| Architectural Services   | 68                      | 87                      | 27%                | 3%                                    |
| Testing Laboratories   | 62                      | 75                      | 20%                | 2%                                    |
| Research and Development in Biotechnology (except Nanobiotechnology)   | 68                      | 87                      | 28%                | 2%                                    |
| Federal Government, Military   | 67                      | 69                      | 2%                 | 2%                                    |

Source: EMSI 2022.3

**Table 6. Top Employers Posting Engineering Technology Certificate of Achievement Occupations in Bay Region and SC-Monterey Sub-Region (Nov 2021 - Oct 2022)**

| Employer                | Bay | Employer            | SC-Monterey |
|-------------------------|-----|---------------------|-------------|
| Tesla                   | 96  | State of california | 18          |
| Bridgestone / Firestone | 94  | Utiliquest Llc      | 9           |
| Amazon                  | 92  | County Monterey     | 9           |
| Cepheid                 | 88  | Protech Automotive  | 8           |
| state of california     | 58  | Joby Aviation       | 7           |
| Utiliquest Llc          | 53  | County Santa Cruz   | 7           |

Source: Burning Glass

## Educational Supply

There are three (3) community colleges in the Bay Region issuing 30 awards on average annually (last 3 years ending 2018-19) on TOP 0924.00 Engineering Technology, General (requires Trigonometry). In the SC-Monterey Sub-Region, there is one (1) community college that issued 17 awards on average annually (last 3 years) on this TOP code.

**Table 7a. Community College Awards on TOP 0924.00 Engineering Technology, General (requires Trigonometry) in Bay Region**

| College       | Subregion     | Associate Degree | High unit Certificate | Low unit Certificate | Total     |
|---------------|---------------|------------------|-----------------------|----------------------|-----------|
| Cabrillo      | SC-Monterey   | 2                | 1                     | 14                   | 17        |
| Las Positas   | East Bay      | 11               | 0                     | 0                    | 11        |
| San Francisco | Mid-Peninsula | 2                | 0                     | 0                    | 2         |
| <b>Total</b>  |               | <b>15</b>        | <b>1</b>              | <b>14</b>            | <b>30</b> |

Source: Data Mart

Note: The annual average for awards is 2017-18 to 2019-20.

## Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 377 annual openings for the Engineering Technology occupational cluster and 30 annual (3-year average) awards for an annual undersupply of 347 students. In the SC-Monterey Sub-Region, there is a very small gap with 21 annual openings and 17 annual (3-year average) awards for an annual undersupply of 4 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0924.00 Engineering Technology, General (requires Trigonometry)**

| Metric Outcomes   | Bay All CTE Programs | Cabrillo All CTE Programs | State 0924.00 | Bay 0924.00 | SC-Monterey 0924.00 | Cabrillo 0924.00 |
|---|----------------------|---------------------------|---------------|-------------|---------------------|------------------|
| Students with a Job Closely Related to Their Field of Study | 74%                  | 80%                       | 66%           | 68%         | 100%                | 100%             |
| Median Annual Earnings for SWP Exiting Students             | \$47,419             | \$40,665                  | \$36,469      | \$48,280    | \$43,660            | \$45,552         |
| Median Change in Earnings for SWP Exiting Students          | 23%                  | 23%                       | 37%           | 28%         | 19%                 | 18%              |
| Exiting Students Who Attained the Living Wage               | 52%                  | 47%                       | 59%           | 52%         | 49%                 | 52%              |

Source: Launchboard Strong Workforce Program Median of 2017 to 2020.

## Skills, Certifications and Education

**Table 9. Top Skills for Engineering Technology Occupations in Bay Region (Nov. 2021 – Oct. 2022)**

| Skill                                | Posting | Skill                              | Posting |
|--------------------------------------|---------|------------------------------------|---------|
| Repair                               | 2,666   | Customer Service                   | 408     |
| Predictive/Preventative Maintenance  | 985     | Wiring                             | 387     |
| Hand Tools                           | 777     | Test Equipment                     | 383     |
| Schematic Diagrams                   | 705     | Project Management                 | 364     |
| Scheduling                           | 663     | Packaging                          | 349     |
| AutoCAD                              | 616     | Welding                            | 336     |
| Equipment Maintenance                | 604     | Lifting Ability                    | 324     |
| Machinery                            | 602     | Electrical Systems                 | 318     |
| Vaccination                          | 520     | Robotics                           | 304     |
| Computer Aided Drafting/Design (CAD) | 506     | Forklift Operation                 | 288     |
| Calibration                          | 503     | Good Manufacturing Practices (GMP) | 249     |
| Power Tools                          | 484     | Quality Assurance and Control      | 248     |
| Cleaning                             | 453     | Soldering                          | 244     |
| Occupational Health and Safety       | 425     | Budgeting                          | 236     |

Source: Burning Glass

**Table 10. Certifications for Engineering Technology Occupations in the Bay Region (Nov. 2021 – Oct. 2022)**

| Certification                                     | Posting | Certification                    | Posting |
|---|---------|----------------------------------|---------|
| Driver's License                                  | 1,331   | Licensed Professional Surveyor   | 24      |
| Cdl Class C                                       | 98      | Project Management Certification | 20      |
| Security Clearance                                | 62      | IPC Certification                | 18      |
| OSHA Forklift Certification                       | 54      | Cdl Class B                      | 18      |
| Automotive Service Excellence (ASE) Certification | 42      | AutoCAD Certification            | 17      |
| CDL Class A                                       | 32      | Air Brake Certified              | 17      |
| Airframe and Powerplant (A and P) Certification   | 31      | Hazwoper                         | 16      |
| Wastewater Treatment Plant Operator               | 28      | Licensed Professional Engineer   | 15      |

|                           |    |   |    |
|---------------------------|----|---|----|
| Electrician Certification | 27 | American Board for Engineering and Technology (ABET) Accredited | 14 |
|---------------------------|----|---|----|

Source: Burning Glass

**Table 11. Education Requirements for Engineering Technology Occupations in Bay Region**

| Education (minimum advertised)     | Latest 12 Mos. Postings | Percent 12 Mos. Postings |
|------------------------------------|-------------------------|--------------------------|
| High school or vocational training | 1,898                   | 59%                      |
| Associate's degree                 | 530                     | 17%                      |
| Bachelor's degree and higher       | 784                     | 24%                      |

Source: Burning Glass

Note: 43% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample.

## 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 CCCCCO 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:

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