

# Photonics and Laser Technology Occupations

# Labor Market Information Report

# Canada College

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

**February 2021**

## Recommendation

Based on all available data, there appears to be an “undersupply” of Photonics and Laser Technology workers compared to the demand for this cluster of occupations in the Bay region and in the Mid-Peninsula sub-region (San Francisco and San Mateo counties). There is a projected annual gap of about 341 students in the Bay region and 88 students in the Mid-Peninsula Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0934.80 - Laser and Optical Technology 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 Canada College and in the region.

This report profiles Photonics and Laser Technology Occupations in the 12 county Bay region and in the Mid-Peninsula sub-region for a proposed new program at Canada College.

* **Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other (17-3098):** All engineering technicians, except drafters, not listed separately.
  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 Photonics and Laser Technology Occupations in Bay Region**

| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other | 3,276 | 3,409 | 133 | 4% | 1,770 | 354 | $ 25.08 | $ 32.52 |
| **Total** | **3,276** | **3,409** | **133** | **4%** | **1,770** | **354** | **$25.08** | **$32.52** |
| Source: EMSI 2020.4 |

**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 Photonics and Laser Technology Occupations in Mid-Peninsula Sub-region**

| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other | 692 | 781 | 89 | 13% | 442 | 88 | $ 30.31 | $ 38.19 |
| **Total** | **692** | **781** | **89** | **13%** | **442** | **88** | **$30.31** | **$38.19** |
| Source: EMSI 2020.4 |

**Mid-Peninsula Sub-Region includes:** San Francisco and San Mateo Counties

### Job Postings in Bay Region and Mid-Peninsula Sub-Region

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

| **Occupation** | **Bay Region** | **Mid-Peninsula** |
| --- | --- | --- |
| Photonics Technicians | 53 | 7 |
| Source: Burning Glass |

**Table 4a. Top Job Titles for Photonics and Laser Technology Occupations for latest 12 months (Feb 2020 - Jan 2021) Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Laser Test Technician | 7 | Spectrum | 1 |
| Surgical Laser Technician | 5 | Service Technician, Laser Systems | 1 |
| Photonics/Laser Electro - Optics Technologists | 4 | Senior Laser Weld Technician | 1 |
| Laser Technician | 4 | Sdet - Solid State Devices | 1 |
| Registered Nurse Laser Technician | 3 | Research And Development Technician - Laser/Optics | 1 |
| Fiber Optics Assembler | 3 | Lasik/Laser/Refractive Technician | 1 |
| Laser Lead Operator Technical Associate | 2 | Laser/Optics Technician | 1 |
| Laser Electro - Optic Technologist - Optical Science Laser | 2 | Laser Tracker Technician | 1 |
| 3D Printer And Laser Technician | 2 | Laser Technical Operations Coordinator L | 1 |
| Source: Burning Glass |

**Table 4b. Top Job Titles for Photonics and Laser Technology Occupations for latest 12 months (Feb 2020 - Jan 2021) Mid-Peninsula Sub-Region**

| **Title** | **Mid-Peninsula** |
| --- | --- |
| Laser Test Technician | 2 |
| Research And Development Technician - Laser/Optics | 1 |
| Registered Nurse Laser Technician | 1 |
| Laser Technician | 1 |
| Laser Alignment Technician | 1 |

## Industry Concentration

**Table 5. Industries hiring Photonics and Laser Technology Workers in Bay Region**

| **Industry – 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2019)** | **Jobs in Industry (2024)** | **% Change (2019-24)** | **% Occupation Group in Industry (2019)** |
| --- | --- | --- | --- | --- |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) | 369 | 419 | 14% | 12% |
| Testing Laboratories | 267 | 252 | -6% | 8% |
| Engineering Services | 256 | 263 | 3% | 8% |
| Research and Development in Biotechnology (except Nanobiotechnology) | 221 | 283 | 28% | 7% |
| Federal Government, Civilian, Excluding Postal Service | 181 | 182 | 0% | 6% |
| Semiconductor and Related Device Manufacturing | 175 | 160 | -8% | 5% |
| Electronic Computer Manufacturing | 143 | 158 | 10% | 4% |
| Temporary Help Services | 112 | 102 | -8% | 3% |
| Custom Computer Programming Services | 97 | 115 | 19% | 3% |
| Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals | 67 | 61 | -9% | 2% |
| Source: EMSI 2020.4 |

**Table 6. Top Employers Posting Photonics and Laser Technology (PALT) Occupations in Bay Region (Feb 2020 - Jan 2021)**

| **Employer** | **Bay** |
| --- | --- |
| Lawrence Livermore National Laboratory | 6 |
| Universal Hospital Services Incorporated | 4 |
| Tellus Solutions | 3 |
| Sev Laser Aesthetics | 3 |
| Health Care Service Corporation | 3 |
| Lta Research & Exploration | 2 |
| Llnl | 2 |
| Coherent Incorporated | 2 |
| Avispa Incorporated | 2 |
| R&M Usa, Inc | 1 |
| Source: Burning Glass |

## Educational Supply

There is one (1) community college in the Bay Region issuing 13 awards on average annually (last 3 years ending 2018-19) on TOP 0934.80 - Laser and Optical Technology. In the Mid-Peninsula Sub-Region, there are no community colleges issuing awards on average annually (last 3 years) on this TOP code.

**Table 7a. Community College Awards on TOP 0934.80 - Laser and Optical Technology in Bay Region**

| **College** | **Subregion** | **Associate** | **Certificate Low** | **Total** |
| --- | --- | --- | --- | --- |
| San Jose City | Silicon Valley | 2 | 11 | 13 |
| **Total** |  | **2** | **11** | **13** |
| Source: Data Mart |

*Note: The annual average for awards is 2016-17 to 2018-19.*

## Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 354 annual openings for the Photonics and Laser Technology occupational cluster and 13 annual (3-year average) awards for an annual undersupply of 341 students. In the Mid-Peninsula Sub-Region, there is also a gap with 88 annual openings and no annual (3-year average) awards for an annual undersupply of 88 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0934.80 - Laser and Optical Technology**

| **Metric Outcomes** | **Bay****All CTE Program** | **Canada All CTE Program** | **State 0934.80** | **Bay 0934.80** | **Mid-Peninsula 0934.80** | **Canada 0934.80** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study\* | 75% | 79% | N/A | N/A | N/A | N/A |
| Median Annual Earnings for SWP Exiting Students | $45,864 | $43,272 | $51,292 | $54,574 | N/A | N/A |
| Median Change in Earnings for SWP Exiting Students | 31% | 49% | 26% | N/A | N/A | N/A |
| Exiting Students Who Attained the Living Wage | 53% | 30% | 68% | N/A | N/A | N/A |
| Source: Launchboard Strong Workforce Program from version 2018-19).\* Data from version 2017-18 |

## Skills and Education

**Table 9. Top Skills for Photonics and Laser Technology Occupations in Bay Region (Feb 2020 - Jan 2021)**

| **Skill** | **Postings** | **Skill** | **Postings** |
| --- | --- | --- | --- |
| Repair | 15 | SolidWorks | 6 |
| Oscilloscopes | 13 | Test Equipment | 6 |
| Manufacturing Processes | 10 | Calibration | 5 |
| LabVIEW | 9 | Electro-Optical Systems | 5 |
| Cleaning | 8 | Fiber Optics | 5 |
| Physics | 8 | Hand Tools | 5 |
| Scheduling | 8 | Microscope | 5 |
| Systems Engineering | 8 | Peer Review | 5 |
| Electronics Industry Knowledge | 7 | Record Keeping | 5 |
| Manual Dexterity | 7 | Surgery | 5 |
| Power Supplies | 7 | Technical Support | 5 |
| Customer Service | 6 | Troubleshooting Technical Issues | 5 |
| Packaging | 6 | Wiring | 5 |
| Photonics | 6 | Wiring Diagrams | 5 |
| Source: Burning Glass |

**Table 10. Education Requirements for Photonics and Laser Technology Occupations in Bay Region**

| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **Percent 12 Mos. Postings** |
| --- | --- | --- |
| High school or vocational training | 15 | 48% |
| Associate's degree | 8 | 26% |
| Bachelor's degree | 8 | 26% |
| 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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