



Photonics and Laser Technology Occupations Labor Market Information Report Canada 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 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 CCCCCO 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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