



Labor Market Analysis for Program Recommendation Engineering Technologist Occupations Chabot 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 Technologist 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 746 students in the Bay region and 226 students in the East Bay Sub-Region.

Introduction

This report provides student outcomes data on employment and earnings for TOP 0924.00 - Engineering Technology, General 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 Chabot College and in the region.

This report profiles Engineering Technologist Occupations in the 12 county Bay region and in the East Bay sub-region for a proposed new program at Chabot College.

- **Architectural and Civil Drafters (17-3011):** Prepare detailed drawings of architectural and structural features of buildings or drawings and topographical relief maps used in civil engineering projects, such as highways, bridges, and public works. Use knowledge of building materials, engineering practices, and mathematics to complete drawings.
Entry-Level Educational Requirement: Associate’s degree
Training Requirement: None
Percentage of Community College Award Holders or Some Postsecondary Coursework: 52%
- **Electrical and Electronics Drafters (17-3012):** Prepare wiring diagrams, circuit board assembly diagrams, and layout drawings used for the manufacture, installation, or repair of electrical equipment.
Entry-Level Educational Requirement: Associate’s degree
Training Requirement: None
Percentage of Community College Award Holders or Some Postsecondary Coursework: 58%
- **Mechanical Drafters (17-3013):** Prepare detailed working diagrams of machinery and mechanical devices, including dimensions, fastening methods, and other engineering information.
Entry-Level Educational Requirement: Associate’s degree
Training Requirement: None
Percentage of Community College Award Holders or Some Postsecondary Coursework: 58%

- **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%
- **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%

Occupational Demand

Table 1. Employment Outlook for Engineering Technologist Occupations in Bay Region

Occupation	2021 Jobs	2026 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Architectural and Civil Drafters	3,652	3,796	144	4%	2,277	455	\$29	\$34
Electrical and Electronics Drafters	884	967	83	9%	512	102	\$31	\$39
Mechanical Drafters	1,164	1,212	47	4%	602	120	\$28	\$39
Drafters, All Other	431	424	-7	-2%	204	41	\$26	\$31
Electro-Mechanical and Mechatronics Technologists and Technicians	481	509	28	6%	278	56	\$21	\$30
Total	6,612	6,908	296	4%	3,873	774		

Source: Lightcast 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 Technologist Occupations in East Bay Sub-region

Occupation	2021 Jobs	2026 Jobs	5-yr Change	5-yr % Change	5-yr Total Openings	Annual Openings	25% Hourly Earning	Median Hourly Wage
Architectural and Civil Drafters	1,174	1,228	55	5%	740	148	\$26	\$33
Electrical and Electronics Drafters	164	181	17	11%	96	19	\$29	\$32
Mechanical Drafters	287	316	29	10%	169	34	\$25	\$34
Drafters, All Other	157	159	2	1%	76	15	\$24	\$30
Electro-Mechanical and Mechatronics Technologists and Technicians	155	163	8	5%	88	18	\$16	\$26
Total	1,937	2,047	110	6%	1,169	234		

Source: Lightcast 2022.3

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. 2022 - Oct. 2023)

Occupation	Bay Region	East Bay
Electro-Mechanical and Mechatronics Technologists and Technicians	888	342
Drafters, All Other	748	282
Electrical and Electronics Drafters	746	97
Mechanical Drafters	329	127
Architectural and Civil Drafters	130	51

Source: Lightcast

**Table 4a. Top Job Titles for Engineering Technologist Occupations for latest 12 months (Nov. 2022 - Oct. 2023)
Bay Region**

Title	Bay	Title	Bay
Calibration Technicians	106	CAD Drafters	51
CAD Engineers	98	Robotics Technicians	49
Instrument Technicians	86	Instrumentation Technicians	46
Analog Design Engineers	81	Electromechanical Assemblers	45
Electronics Technicians	81	Analog IC Design Engineers	44
Drafters	70	PCB Designers	33
Mechanical Designers	63	Methodologists	31
Electrical Designers	60	Electromechanical Technicians	30
CAD Designers	57	CAD Technicians	29

Source: Lightcast

**Table 4b. Top Job Titles for Engineering Technologist Occupations for latest 12 months (Nov. 2022 - Oct. 2023)
East Bay Sub-Region**

Title	East Bay	Title	East Bay
Calibration Technicians	34	CAD Technicians	18
Drafters	34	Instrumentation Technicians	18
Electromechanical Assemblers	31	Electromechanical Technicians	16
Electronics Technicians	31	Automation Technicians	15
Instrument Technicians	27	Piping Designers	15
Mechanical Designers	25	CAD Engineers	12
CAD Designers	21	CAD Operators	11

Title	East Bay	Title	East Bay
Robotics Technicians	20	Electrical Designers	11
CAD Drafters	19	Rework Operators	11

Source: Lightcast

Industry Concentration

Table 5. Industries hiring Engineering Technologist Workers in Bay Region

Industry - 6 Digit NAICS (No. American Industry Classification) Codes	Jobs in Industry (2021)	Jobs in Industry (2026)	% Change (2021-26)	% Occupation Group in Industry (2022)
Engineering Services	1,611	1,768	10%	23%
Architectural Services	1,215	1,129	-7%	15%
Landscape Architectural Services	264	248	-6%	3%
Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)	149	235	57%	3%
Plumbing, Heating, and Air-Conditioning Contractors	161	191	19%	3%
Semiconductor Machinery Manufacturing	146	167	15%	2%
Electrical Contractors and Other Wiring Installation Contractors	150	165	11%	2%
Research and Development in Biotechnology (except Nanobiotechnology)	97	177	83%	2%
Semiconductor and Related Device Manufacturing	137	148	8%	2%
Electronic Computer Manufacturing	147	151	3%	2%

Source: Lightcast 2022.3

Table 6. Top Employers Posting Engineering Technologist Occupations in Bay Region and East Bay Sub-Region (Nov. 2022 - Oct. 2023)

Employer	Bay	Employer	East Bay
Apple	92	Randstad	32
Randstad	72	Tesla	24
GPAC	52	Lawrence Livermore National Laboratory	21
Actalent	44	GPAC	16
Tesla	34	Actalent	15
Marvell Semiconductor	26	AECOM	14

Source: Lightcast

Educational Supply

There are four (4) community colleges in the Bay Region issuing 28 awards on average annually (last 3 years ending 2021-22) on TOP 0924.00 - Engineering Technology, General. In the East Bay Sub-Region, there is one (1) community college that issued eight (8) awards on average annually (last 3 years) on this TOP code.

Table 7. Community College Awards on TOP 0924.00 Engineering Technology, General in Bay Region

College	Subregion	Associate Degree	High unit Certificate	Low unit Certificate	Total
Cabrillo	SC-Monterey	3	2	12	17
Las Positas	East Bay	8	0	0	8
San Francisco	Mid-Peninsula	2	0	0	2
San Mateo	Mid-Peninsula	1	0	0	1
Total		14	2	12	28

Source: Data Mart

Note: The annual average for awards is 2019-20 to 2021-22.

Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 774 annual openings for the Engineering Technologist occupational cluster and 28 annual (3-year average) awards for an annual undersupply of 746 students. In the East Bay Sub-Region, there is also a gap with 234 annual openings and eight (8) annual (3-year average) awards for an annual undersupply of 226 students.

Student Outcomes

Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0924.00 - Engineering Technology, General

Metric Outcomes	Bay All CTE Programs	Chabot All CTE Programs	State 0924.00	Bay 0924.00	East Bay 0924.00	Chabot 0924.00
Students with a Job Closely Related to Their Field of Study	74%	75%	67%	81%	N/A	N/A
Median Annual Earnings for SWP Exiting Students	\$53,090	\$48,800	\$39,006	\$51,522	\$51,637	N/A
Median Change in Earnings for SWP Exiting Students	24%	34%	37%	27%	N/A	N/A
Exiting Students Who Attained the Living Wage	54%	56%	58%	51%	67%	N/A

Source: Launchboard Strong Workforce Program Median of 2018 to 2021.

Skills, Certifications and Education

Table 9. Top Skills for Engineering Technologist Occupations in Bay Region (Nov. 2022 - Oct. 2023)

Skill	Posting	Skill	Posting
Computer-Aided Design	721	Electronics	213
AutoCAD	565	3D Modeling	206
Electrical Engineering	391	Mechanical Engineering	205

Skill	Posting	Skill	Posting
Automation	282	Printed Circuit Board	193
Project Management	272	Calibration	190
Debugging	271	Scripting	184
Python (Programming Language)	266	Simulations	184
Autodesk Revit	246	Oscilloscope	173
Test Equipment	237	Instrumentation	170
Electromechanics	227	Soldering	170

Source: Lightcast

Table 10. Certifications for Engineering Technologist Occupations in Bay Region (Nov. 2022 - Oct. 2023)

Certification	Posting	Certification	Posting
Valid Driver's License	197	Transportation Worker Identification Credential (TWIC) Card	16
Enterprise Desktop Administrator (Microsoft Certified IT Professional)	167	Certified Loss Control Specialist	15
Security Clearance	71	Professional Engineer (PE) License	14
LEED Accredited Professional (AP)	22	Top Secret-Sensitive Compartmented Information (TS/SCI Clearance)	12
Engineer in Training	21	Secret Clearance	11
CDL Class C License	18	NICET Certification (National Institute For Certification In Engineering Technologies)	11

Source: Lightcast

Table 11. Education Requirements for Engineering Technologist Occupations in Bay Region

Education Level	Job Postings	% of Total
High school or GED	390	16%
Associate degree	510	22%
Bachelor's degree & higher	1,467	62%

Source: Lightcast

Note: 40% 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 job descriptions and skills listed in O*Net. Labor demand data is sourced from Lightcast occupation and job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CCCCO Data Mart and CTE Launchboard.

Sources

O*Net Online

Lightcast

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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