**** **Sound Engineering Technicians**

**Labor Market Information Report**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

November 2018

# Recommendation

Based on available data, there appears to be a small undersupply of Sound Engineering Technicians in the Bay region compared to the demand for this occupation, with a gap of about 17 students annually. In the East Bay sub-region (Alameda and Contra Costa Counties) there appears to be an oversupply compared to the demand for this occupation, with 22 annual openings and 32 annual awards.

This report also provides student outcomes data on employment and earnings for programs on TOP 1005.00 - Commercial Music in the state and region. It is recommended that this 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 Las Positas College and in the region.

# Introduction

This report profiles Sound Engineering Technicians in the 12 county Bay region and in the East Bay sub-region for a proposed new Music Technology Fundamentals certificate at Las Positas College.

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| --- |
| * **Sound Engineering Technicians (SOC 27-4014):** Operate machines and equipment to record, synchronize, mix, or reproduce music, voices, or sound effects in sporting arenas, theater productions, recording studios, or movie and video productions.
 |
| *Entry-Level Educational Requirement: Postsecondary nondegree award* |
| *Training Requirement: Short-term on-the-job training* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 46%* |
|  |

**Occupational Demand**

**Table 1. Employment Outlook for Sound Engineering Technicians in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Sound Engineering Technicians | 803 | 847 | 44  | 5% | 423 | 85 | $15.33  | $28.66  |

*Source: EMSI 2018.2*

**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 Sound Engineering Technicians in East Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Sound Engineering Technicians | 215 | 224 | 9  | 4% | 109 | 22 | $15.04  | $27.78  |

*Source: EMSI 2018.2*

**East Bay Sub-Region** includes Alameda and 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 (Sept 2017 - Aug 2018)**

|  |  |  |
| --- | --- | --- |
| Occupation | Bay Region | East Bay |
| Sound Engineering Technicians (27-4014) | 272 | 25 |

*Source: Burning Glass*

**Table 4. Top Job Titles for Sound Engineering Technicians for latest 12 months (Sept 2017 - Aug 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay | East Bay | Common Title | Bay | East Bay |
| Systems Engineer | 23 |  | Instrumentation Engineer | 5 |  |
| Hardware Engineer | 17 |  | Mechanic | 5 |  |
| Android Engineer | 13 |  | Sound Mixer | 5 | 2 |
| Firmware Engineer | 13 | 3 | Test Engineer | 5 |  |
| Audio Engineer | 10 |  | Video Design Engineer | 5 | 4 |
| Broadcast Engineer | 10 |  | Chief Engineer | 4 |  |
| Theater Technician | 9 |  | Electrical Engineer | 4 |  |
| Engineer | 8 | 2 | Machine Learning Engineer | 4 | 1 |
| Validation Engineer | 8 |  | Senior Engineer | 4 |  |
| Linux Engineer | 7 | 1 | Sound Designer | 4 |  |
| Audio Dsp Engineer | 6 |  | Sound Recordist | 4 | 1 |
| Engineer, Test | 6 |  | User Experience (UX) Designer | 4 |  |
| Building Engineer | 5 |  | Acoustic Engineer | 3 |  |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Sound Engineering Technicians in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2017) | Jobs in Industry (2022) | % Change (2017-22) | % in Industry (2017) |
| Motion Picture and Video Production | 304 | 330 | 26 | 9% |
| Colleges, Universities, and Professional Schools | 193 | 225 | 32 | 17% |
| Colleges, Universities, and Professional Schools (State Government) | 163 | 181 | 18 | 11% |
| Internet Publishing and Broadcasting and Web Search Portals | 157 | 206 | 49 | 31% |
| Religious Organizations | 136 | 146 | 10 | 7% |
| Independent Artists, Writers, and Performers | 129 | 123 |  (6) |  (5%) |
| Other Commercial and Industrial Machinery and Equipment Rental and Leasing | 121 | 159 | 38 | 31% |
| All Other Consumer Goods Rental | 119 | 128 | 9 | 8% |
| Theater Companies and Dinner Theaters | 101 | 111 | 10 | 10% |
| Promoters of Performing Arts, Sports, and Similar Events with Facilities | 95 | 118 | 23 | 24% |
| Cable and Other Subscription Programming | 84 | 71 |  (13) |  (15%) |
| Colleges, Universities, and Professional Schools (Local Government) | 82 | 76 |  (6) |  (7%) |
| Teleproduction and Other Postproduction Services | 79 | 87 | 8 | 10% |
| Television Broadcasting | 78 | 80 | 2 | 3% |
| Temporary Help Services | 76 | 84 | 8 | 11% |
| Electrical Contractors and Other Wiring Installation Contractors | 72 | 82 | 10 | 14% |
| Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing | 70 | 74 | 4 | 6% |
| Local Government, Excluding Education and Hospitals | 69 | 74 | 5 | 7% |
| Custom Computer Programming Services | 67 | 82 | 15 | 22% |
| Federal Government, Military | 64 | 64 | 0 | 0% |
| Hotels (except Casino Hotels) and Motels | 43 | 43 | 0 | 0% |
| Elementary and Secondary Schools (Local Government) | 41 | 46 | 5 | 12% |
| Computer Systems Design Services | 39 | 48 | 9 | 23% |
| Recreational Goods Rental | 36 | 42 | 6 | 17% |

*Source: EMSI 2018.3*

**Table 6. Top Employers Posting for Sound Engineering Technicians in Bay and East Bay Sub-Region (Sept 2017 - Aug 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | East Bay |
| Apple Inc. | 39 | Inficare Technologies | 3 | Newgig | 4 |
| Google Inc. | 24 | Ion Media Networks | 3 | Apple Inc. | 1 |
| Amazon | 17 | MuleSoft | 3 | Cal Performances | 1 |
| Amazon Lab126 | 8 | Academy Art University | 2 | Carney Sandoe Associates | 1 |
| Facebook | 8 | Akshaya Inc | 2 | Chabot College | 1 |
| CBS Broadcasting | 4 | Audience Incorporated | 2 | City Pleasanton | 1 |
| Dolby Laboratories Incorporated | 4 | Carney Sandoe Associates | 2 | Freight & Salvage | 1 |
| Newgig | 4 | Knowles Electronics Llc | 2 | John Kennedy University | 1 |
| Cynet Systems | 3 | Logitech Incorporated | 2 | Logitech | 1 |
| Disney | 3 | Plantronics Incorporated | 2 | Logitech Incorporated | 1 |

*Source: Burning Glass*

# Educational Supply

There are six colleges in the Bay Region issuing 64 awards annually on TOP 1005.00 - Commercial Music. There is one other educational institutions issuing 4 awards annually on CIP code 50.0913 crosswalked to TOP 1005.00, for a total of 68 awards annually in the region.

**Table 7. Awards on TOP 1005.00 - Commercial Music in the Bay Area**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| College | Sub-Region | CIP Code | Headcount | Associates | Certificates | Total |
| Cabrillo | Santa Cruz & Monterey | n/a | 75 | 1 | 5 | 6 |
| Diablo Valley | East Bay | n/a | 366 | 9 | 12 | 21 |
| Foothill | Silicon Valley | n/a | 757 | 12 | 3 | 15 |
| Los Medanos | East Bay | n/a | 191 | 6 | 4 | 10 |
| Ohlone | East Bay | n/a | n/a |  | 1 | 1 |
| West Valley | Silicon Valley | n/a | n/a |  | 11 | 11 |
| San Francisco Conservatory of Music | Mid-Peninsula | 50.0913 | n/a |  | 4 | 4 |
| **Total Bay Region** |  | **1,389** | **28** | **40** | **68** |
| **Total East Bay Sub-Region** |  | **557** | **15** | **17** | **32** |

# *Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards is 2014-17 unless there are only awards in 2016-17. The annual average for other postsecondary is for 2013-16.

# Gap Analysis

Based on the data included in this report, there is a small labor market gap in the Bay region with 85 annual openings for Sound Engineering Technicians and 68 annual awards for an annual undersupply of 17. In the East Bay sub-region there appears to be an oversupply compared to the demand, with 22 annual openings and 32 annual awards.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 1005.00 – Commercial Music**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay (All CTE Programs) | Las Positas College (All CTE Programs) | State (TOP 1005.00) | Bay (TOP 1005.00) | East Bay (TOP 1005.00) | Las Positas College (TOP 1005.00) |
| % Employed Four Quarters After Exit | 74% | 75% | 62% | 63% | 67% | N/A |
| Median Quarterly Earnings Two Quarters After Exit | $10,310 | $11,482 | $4,576 | $4,867 | $4,390 | N/A |
| Median % Change in Earnings | 46% | 39% | 69% | 58% | 67% | N/A |
| % of Students Earning a Living Wage | 63% | 64% | 23% | 29% | 28% | N/A |

*Source: Launchboard Pipeline (version available on 9/11/18)*

# Skills and Education

**Table 9. Top Skills for Sound Engineering Technicians in Bay Region (Sept 2017 - Aug 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Digital Signal Processing (DSP) | 77 | Schematic Diagrams | 28 | Hardware Experience | 17 |
| Audio Engineering | 73 | Physics | 27 | Real-Time Operating System (RTOS) | 16 |
| Python | 52 | Test Tools | 27 | AutoCAD | 15 |
| C++ | 48 | Android | 24 | System Architecture | 15 |
| Audio / Visual Knowledge | 46 | Software Development | 24 | Technical Support | 15 |
| Audio Systems | 46 | Software Engineering | 24 | Linux Kernel | 14 |
| Linux | 44 | Transducer | 23 | MacIntosh OS | 14 |
| Consumer Electronics | 42 | Customer Service | 22 | Oscilloscopes | 14 |
| MATLAB | 37 | Digital Audio | 22 | Speech Recognition | 14 |
| Broadcast Industry Knowledge | 34 | Repair | 22 | Audio Production | 13 |
| Product Development | 32 | Data Analysis | 21 | Calculation | 13 |
| Prototyping | 31 | Internet of Things (IoT) | 20 | Electrical Systems | 13 |
| Debugging | 30 | COMSOL | 19 | Java | 13 |
| System Design | 30 | Project Management | 19 | Manufacturing Processes | 13 |
| Music | 28 | Customer Contact | 18 | Pro Tools | 13 |

*Source: Burning Glass*

**Table 10. Education Requirements for Sound Engineering Technicians in Bay Region**

Note: 40% 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 |
| High school or vocational training | 6 (4%) |
| Associate Degree | 1 (1%) |
| Bachelor’s Degree or Higher | 160 (95%) |

*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

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