** Music Technology and Production Occupations**

**Labor Market Information Report**

**Chabot College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

June 2019

# Recommendation

Based on all available data, there appears to be an undersupply of Music Technology and Production workers compared to the demand for this cluster of occupations in the Bay region and in the East Bay sub-region (Alameda and Contra Costa Counties.) There is a projected annual gap of about 589 students in the Bay region and 134 students in the East Bay Sub-Region.

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 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.

# Introduction

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

|  |
| --- |
| * **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% |
|  |
| * **Audio and Video Equipment Technicians (SOC 27-4011):** Set up, or set up and operate audio and video equipment including microphones, sound speakers, video screens, projectors, video monitors, recording equipment, connecting wires and cables, sound and mixing boards, and related electronic equipment for concerts, sports events, meetings and conventions, presentations, and news conferences. May also set up and operate associated spotlights and other custom lighting systems. Excludes "Sound Engineering Technicians" (27-4014). |
| 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*%* |
|  |
| * **Music Directors and Composers (SOC 27-2041):** Conduct, direct, plan, and lead instrumental or vocal performances by musical groups, such as orchestras, bands, choirs, and glee clubs. Includes arrangers, composers, choral directors, and orchestrators. |
| Entry-Level Educational Requirement: Bachelor's *degree* |
| Training Requirement: None |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 25*%* |

# Occupational Demand

**Table 1. Employment Outlook for Music Technology and Production Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Sound Engineering Technicians | 863 | 865 | 2 | 0% | 415 | 83 | $15.13 | $29.35 |
| Audio and Video Equipment Technicians | 3,435 | 3,700 | 265 | 8% | 1,886 | 377 | $15.41 | $22.67 |
| Music Directors and Composers | 1,661 | 1,720 | 59 | 4% | 883 | 177 | $13.09 | $19.14 |
| **Total** | **5,960** | **6,286** | **326** | **5%** | **3,183** | **637** | **$14.72** | **$22.66** |

*Source: EMSI 2019.2*

**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 Music Technology and Production Occupations in East Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Sound Engineering Technicians | 265 | 273 | 9 | 3% | 131 | 26 | $17.09 | $29.75 |
| Audio and Video Equipment Technicians | 859 | 911 | 52 | 6% | 465 | 93 | $17.93 | $25.39 |
| Music Directors and Composers | 584 | 598 | 15 | 3% | 305 | 61 | $14.25 | $24.14 |
| **TOTAL** | **1,707** | **1,782** | **75** | **4%** | **901** | **180** | **$16.54** | **$25.64** |

*Source: EMSI 2019.2*

**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 (June 2018 - May 2019)**

| Occupation | Bay Region | East Bay |
| --- | --- | --- |
| Audio and Video Equipment Technicians | 782 | 130 |
| Sound Engineering Technicians | 339 | 33 |
| Music Composers and Arrangers | 12 | 1 |
| **Total** | **1,133** | **164** |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Music Technology and Production Occupations for latest 12 months (June 2018 - May 2019) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Audio Visual Technician | 306 | Stage Technician | 10 |
| Systems Engineer | 36 | Event Technician | 10 |
| Director of Event Technology | 30 | Android Engineer | 10 |
| Video Technician | 26 | Technician | 9 |
| Engineer | 25 | Systems Specialist | 9 |
| Theater Technician | 18 | Video Production Specialist | 8 |
| Field Service Technician | 17 | Sound Engineer | 8 |
| Firmware Engineer | 15 | Installation Technician | 8 |
| Technical Lead, Audio Visual | 14 | Broadcast Engineer | 8 |
| Hardware Engineer | 14 | Video Support Engineer | 7 |
| Audio Engineer | 13 | Audio Dsp Engineer | 7 |
| Production Technician | 12 | Technical Supervisor, Audio Visual, Accommodation/Hotels Industry | 6 |
| Technology Manager | 11 | Technical Supervisor, Audio Visual | 6 |
| Video Specialist | 10 | Senior Engineer | 6 |

**Table 4b. Top Job Titles for Music Technology and Production Occupations for latest 12 months (June 2018 - May 2019) East Bay Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | East Bay | Common Title | East Bay |
| Audio Visual Technician | 58 | Mechanic | 2 |
| Theater Technician | 11 | Lead Technician | 2 |
| Field Service Technician | 8 | Instructional Technician, Cooking | 2 |
| Installation Technician | 5 | Instructional Systems Technician | 2 |
| Stage Technician | 4 | Youth Video Technician, Service Industry Industry | 1 |
| Video Support Engineer | 3 | Visual Lighting Technician | 1 |
| Technician | 3 | Videographer | 1 |
| Systems Engineer | 3 | Video Technician | 1 |
| Audio Technician | 3 | Video Specialist | 1 |
| Video Engineer | 2 | Video Installer | 1 |
| Technology Manager | 2 | Technical Theater Stagehands | 1 |
| Technical Theater Stagehand | 2 | Technical Project Manager | 1 |
| Senior Technician, C++ | 2 | Systems Specialist | 1 |
| Media Technician, High School | 2 | Systems Programmer | 1 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Music Technology and Production Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2018) | Jobs in Industry (2022) | % Change (2018-22) | % in Industry (2018) |
| Religious Organizations (813110) | 910 | 936 | 2.9% | 15.2% |
| Independent Artists, Writers, and Performers (711510) | 467 | 462 | (1.1%) | 7.8% |
| Motion Picture and Video Production (512110) | 426 | 452 | 6.1% | 7.1% |
| Colleges, Universities, and Professional Schools (611310) | 228 | 253 | 11.0% | 3.8% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 210 | 268 | 27.6% | 3.5% |
| Colleges, Universities, and Professional Schools (State Government) (902612) | 197 | 209 | 6.1% | 3.3% |
| Elementary and Secondary Schools (Local Government) (903611) | 173 | 177 | 2.3% | 2.9% |
| Theater Companies and Dinner Theaters (711110) | 147 | 153 | 4.1% | 2.5% |
| Sound Recording Studios (512240) | 133 | 127 | (4.5%) | 2.2% |
| Other Commercial and Industrial Machinery and Equipment Rental and Leasing (532490) | 133 | 151 | 13.5% | 2.2% |
| All Other Consumer Goods Rental (532289) | 130 | 144 | 10.8% | 2.2% |
| Promoters of Performing Arts, Sports, and Similar Events with Facilities (711310) | 122 | 134 | 9.8% | 2.0% |
| Elementary and Secondary Schools (611110) | 110 | 114 | 3.6% | 1.9% |
| Teleproduction and Other Postproduction Services (512191) | 104 | 105 | 1.0% | 1.7% |
| Cable and Other Subscription Programming (515210) | 103 | 96 | (6.8%) | 1.7% |
| Television Broadcasting (515120) | 103 | 101 | (1.9%) | 1.7% |
| Musical Groups and Artists (711130) | 102 | 98 | (3.9%) | 1.7% |
| Colleges, Universities, and Professional Schools (Local Government) (903612) | 101 | 96 | (5.0%) | 1.7% |
| Custom Computer Programming Services (541511) | 86 | 98 | 14.0% | 1.4% |
| Temporary Help Services (561320) | 80 | 87 | 8.8% | 1.3% |
| Construction, Mining, and Forestry Machinery and Equipment Rental and Leasing (532412) | 79 | 86 | 8.9% | 1.3% |
| Local Government, Excluding Education and Hospitals (903999) | 76 | 80 | 5.3% | 1.3% |

*Source: EMSI 2019.2*

**Table 6. Top Employers Posting Music Technology and Production Occupations in Bay Region and East Bay Sub-Region (June 2018 - May 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | East Bay |
| Apple Inc. | 60 | Cynet Systems Inc | 6 | Diversified | 7 |
| Psav | 59 | City Palo Alto | 6 | Audio Visual Management Solutions | 7 |
| Psav Presentation Services | 42 | California State University | 6 | Whitlock | 6 |
| Outsource | 19 | Amazon Lab126 | 6 | Dublin Unified School District | 5 |
| Amazon | 18 | Activision | 6 | Bay Area Children's Theatre | 5 |
| Whitlock | 16 | Palermitano Solutions | 5 | Uc San Diego | 4 |
| Audio Visual Management Solutions | 16 | Madison Square Garden | 5 | Psav | 4 |
| Google Inc. | 15 | Herman Av Group | 5 | Outsource | 4 |
| Audio Visual Services Group | 15 | Got Light | 5 | Oakland Museum California | 4 |
| Facebook | 14 | Freeman | 5 | Encore Event Technologies | 4 |
| Diversified | 14 | Fortinet Incorporated | 5 | Chabot College | 4 |
| Encore Event Technologies | 13 | Dublin Unified School District | 5 | University Of California Berkeley | 3 |
| Av Services Incorporated | 12 | Compass Group Plc United States | 5 | Newgig | 3 |
| Disney | 8 | Bay Area Children's Theatre | 5 | Freeman Incorporated | 3 |
| Compass Group | 8 | Astreya | 5 | Facebook | 3 |
| Herman Integration Services | 6 | Uc San Diego | 4 | Allied Digital Services, Llc | 3 |
| Freeman Company | 6 | US Army | 4 | University California | 2 |

*Source: Burning Glass*

# Educational Supply

There are four community colleges in the Bay Region issuing 48 awards on average annually (last 3 years) on TOP 1005.00 - Commercial Music. There are three colleges in the East Bay Sub-Region issuing 46 awards on average annually (last 3 years) on this TOP code.

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Headcount | Associates | Certificates | Total |
| Cabrillo | Santa Cruz & Monterey | 75 |  | 2 | 2 |
| Chabot | East Bay | 129 |  |  |  |
| Diablo Valley | East Bay | 366 | 9 | 12 | 21 |
| Foothill | East Bay | 757 | 12 | 3 | 15 |
| Las Positas | East Bay | 17 |  |  |  |
| Los Medanos | East Bay | 191 | 6 | 4 | 10 |
| Marin | North Bay | 44 |  |  |  |
| Napa | North Bay | 22 |  |  |  |
| Ohlone | East Bay | n/a |  |  |  |
| Santa Rosa | North Bay | 161 |  |  |  |
| Solano | North Bay | 38 |  |  |  |
| **Total Bay Region** | | **1,800** | **27** | **21** | **48** |
| **Total East Bay Sub-Region** | | **1,460** | **27** | **19** | **46** |

# *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 labor market gap in the Bay region with 637 annual openings for the Music Technology and Production occupational cluster and 48 annual (3-year average) awards for an annual undersupply of 589 students. In the East Bay Sub-Region, there is also a gap with 180 annual openings and 46 annual (3-year average) awards for an annual undersupply of 134 students.

# 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) | Chabot College (All CTE Programs) | State (1005.00) | Bay (1005.00) | East Bay (1005.00) | Chabot College (1005.00) |
| % Employed Four Quarters After Exit | 74% | 74% | 63% | 64% | 68% | 89% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $9,425 | $4,540 | $4,867 | $4,406 | $4,477 |
| Median % Change in Earnings | 46% | 71% | 71% | 61% | 68% | n/a |
| % of Students Earning a Living Wage | 63% | 60% | 23% | 29% | 28% | n/a |

*Source: Launchboard Pipeline (version available on 6/4/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for Music Technology and Production Occupations in Bay Region (June 2018 - May 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Video Conferencing | 196 | Project Management | 84 | MATLAB | 57 |
| Customer Service | 189 | Broadcast Industry Knowledge | 84 | Firmware | 57 |
| Digital Signal Processing (DSP) | 174 | Audio Engineering | 83 | Staff Management | 54 |
| Technical Support | 158 | Cabling | 75 | Digital Audio | 54 |
| Repair | 151 | Upselling Products and Services | 74 | System Design | 53 |
| Audio / Visual Knowledge | 123 | Linux | 72 | Quality Assurance and Control | 53 |
| Scheduling | 116 | Software Issue Resolution | 70 | MacIntosh OS | 50 |
| Audio Systems | 113 | Predictive / Preventative Maintenance | 69 | Multimedia | 49 |
| Customer Contact | 111 | Wiring | 68 | Audio mixing | 49 |
| Operations Management | 105 | Satisfaction Failure Correction | 68 | Hardware Experience | 47 |
| C++ | 104 | Music | 68 | Debugging | 47 |
| Python | 95 | Video Production | 67 | Power Tools | 45 |
| Equipment Operation | 95 | Schematic Diagrams | 66 | Budgeting | 45 |
| Sales | 87 | Event Planning | 59 | Occupational Health and Safety | 38 |
| Cisco | 85 | Troubleshooting Technical Issues | 58 | Prototyping | 37 |

*Source: Burning Glass*

**Table 10. Certifications for Music Technology and Production Occupations in Bay Region (June 2018 - May 2019)**

Note: 77% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |  |  |
| --- | --- | --- | --- |
| Certification | Postings | Certification | Postings |
| Driver's License | 230 | Certified Audio Engineering | 2 |
| Occupational Safety and Health Administration Certification | 23 | Cdl Class C | 2 |
| Certified Career Development Facilitator | 18 | Bloodborne Pathogens Certification | 2 |
| Audiovisual (AV) Certification | 6 | BICSI Certification | 2 |
| Cisco Certified Network Associate (CCNA) | 4 | Security Clearance | 1 |
| Certified A+ Technician | 3 | Registered Communications Distribution Designer (RCDD) | 1 |
| Project Management Certification | 2 | Project Management Professional (PMP) | 1 |
| Microsoft Certified Professional (MCP) | 2 | Leadership In Energy And Environmental Design (LEED) Certified | 1 |
| Electronic Technician Certification | 2 | Forklift Operator Certification | 1 |
| CompTIA Security+ | 2 | First Aid Cpr Aed | 1 |
| CompTIA Network+ | 2 | Certified Crestron Programmer | 1 |
| Certified Broadcast Networking Engineer | 2 | Assistive Technology Professional | 1 |

*Source: Burning Glass*

**Table 11. Education Requirements for Music Technology and Production Occupations in Bay Region**

Note: 50% 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 | Percent 12 Mos. Postings |
| High school or vocational training | 211 | 40% |
| Associate Degree | 19 | 4% |
| Bachelor’s Degree or Higher | 289 | 56% |

*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

For more information, please contact:

* Doreen O’Donovan, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), [doreen@baccc.net](mailto:doreen@baccc.net) or (831) 479-6481
* John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, [jcarrese@ccsf.edu](mailto:jcarrese@ccsf.edu) or (415) 267-6544