** Theatrical Technologies Occupations**

**Labor Market Information Report**

**College of Marin**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

January 2019

# Recommendation

Based on all available data, there appears to be an undersupply of Theatrical Technologies workers compared to the demand for this cluster of occupations in the Bay region and in the North Bay sub-region (Marin, Napa, Solano and Sonoma Counties). The gap is about 510 students annually in the Bay region and 203 students annually in the North Bay Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 1006.00 - Technical Theater 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 College of Marin and in the region.

# Introduction

This report profiles Theatrical Technologies Occupations in the 12 county Bay region and in the North Bay sub-region for a proposed new program at College of Marin.

|  |
| --- |
| * **Set and Exhibit Designers (SOC 27-1027): Design special exhibits and movie, television**, and theater sets. May study scripts, confer with directors, and conduct research to determine appropriate architectural styles.
 |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 29%* |
|  |
| * **Makeup Artists, Theatrical and Performance** **(SOC** 39-5091): Apply makeup to performers to reflect period, setting, and situation of their role.
 |
| *Entry-Level Educational Requirement: Postsecondary nondegree award* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 29%* |
|  |
| * **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").
 |
| *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%* |
|  |
| * **Costume Attendants (SOC 39-3092)**: Select, fit, and take care of costumes for cast members, and aid entertainers. May assist with multiple costume changes during performances.
 |
| *Entry-Level Educational Requirement: High school diploma or equivalent* |
| *Training Requirement: Short-term on-the-job training* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 37%* |
|  |
| * **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 Theatrical Technologies Occupations 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 |
| Set and Exhibit Designers | 567 | 593 | 26  | 5% | 59 | 53 | $16.58  | $23.86  |
| Makeup Artists, Theatrical and Performance | 137 | 147 | 10  | 8% | 18 | 16 | $17.62  | $29.30  |
| Audio and Video Equipment Technicians | 3,469 | 3,716 | 248  | 7% | 374 | 321 | $15.62  | $22.38  |
| Costume Attendants | 242 | 263 | 21  | 9% | 61 | 56 | $11.48  | $20.11  |
| Sound Engineering Technicians | 845 | 845 | 0  | 0% | 80 | 76 | $14.80  | $28.69  |
| **Total** | **5,260** | **5,565** | **305** | **6%** | **592** | **522** | **$15.46**  | **$23.63**  |

*Source: EMSI 2018.4*

**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 Theatrical Technologies Occupations in North 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* |
| Set and Exhibit Designers | 204 | 209 | 4  | 2% | 20 | 19 | $19.13  | $33.88  |
| Makeup Artists, Theatrical and Performance | 54 | 55 | 1  | 3% | 6 | 6 | $13.73  | $29.39  |
| Audio and Video Equipment Technicians | 1,305 | 1,387 | 82  | 6% | 137 | 120 | $15.90  | $23.14  |
| Costume Attendants | 114 | 119 | 5  | 5% | 27 | 26 | $12.33  | $20.50  |
| Sound Engineering Technicians | 357 | 352 | (4) |  (1%) | 33 | 32 | $14.22  | $28.05  |
| **TOTAL** | **2,033** | **2,122** | **88**  | **4%** | **224** | **203** | **$15.68**  | **$25.10**  |

*Source: EMSI 2018.4*

**North Bay Sub-Region** includes Marin, Napa, Solano and Sonoma Counties

### Job Postings in Bay Region and North Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (Jan 2018 - Dec 2018)**

| Occupation | Bay Region | North Bay |
| --- | --- | --- |
| Audio and Video Equipment Technicians (27-4011.00) | 696 | 24 |
| Sound Engineering Technicians (27-4014.00) | 317 | 15 |
| Makeup Artists, Theatrical and Performance (39-5091.00) | 95 | 6 |
| Set and Exhibit Designers (27-1027.00) | 31 | 1 |
| Costume Attendants (39-3092.00) | 9 |  |
| **Total** | **1,148** | **46** |

*Source: Burning Glass*

**Table 4. Top Job Titles for Theatrical Technologies Occupations for latest 12 months (Jan 2018 - Dec 2018)**

| Common Title | Bay | North Bay | Common Title | Bay | North Bay |
| --- | --- | --- | --- | --- | --- |
| Audio Visual Technician | 256 | 11 | Stage Technician | 12 | 1 |
| Makeup Artist | 93 | 5 | Video Production Specialist | 12 |  |
| Systems Engineer | 37 |  | Systems Specialist | 11 |  |
| Video Technician | 24 | 1 | Theater Technician | 11 | 2 |
| Hardware Engineer | 19 |  | Broadcast Engineer | 10 |  |
| Director of Event Technology | 18 | 2 | Technician | 10 |  |
| Field Service Technician | 16 |  | Technology Manager | 9 |  |
| Technical Lead, Audio Visual | 16 | 1 | Event Team Member | 8 |  |
| Engineer | 15 |  | Video Specialist | 8 |  |
| Firmware Engineer | 15 |  | Building Engineer | 7 |  |
| Android Engineer | 14 |  | Technical Specialist, Audio Visual | 7 |  |
| Audio Engineer | 14 | 3 | Audio Visual Specialist | 6 |  |
| Production Technician | 13 |  | Installation Technician | 6 | 1 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Theatrical Technologies Workers 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 (512110) | 547 | 548 | 7% | 10.3% |
| Independent Artists, Writers, and Performers (711510) | 257 | 251 |  (5%) | 4.7% |
| Colleges, Universities, and Professional Schools (611310) | 242 | 250 | 15% | 4.7% |
| Theater Companies and Dinner Theaters (711110) | 254 | 249 | 6% | 4.7% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 223 | 227 | 28% | 4.3% |
| Colleges, Universities, and Professional Schools (State Government) (902612) | 213 | 220 | 9% | 4.1% |
| Religious Organizations (813110) | 153 | 156 | 7% | 3.0% |
| Teleproduction and Other Postproduction Services (512191) | 138 | 138 | 4% | 2.6% |
| Promoters of Performing Arts, Sports, and Similar Events with Facilities (711310) | 135 | 134 | 8% | 2.5% |
| All Other Consumer Goods Rental (532289) | 124 | 128 | 13% | 2.4% |
| Other Commercial and Industrial Machinery and Equipment Rental and Leasing (532490) | 123 | 124 | 15% | 2.3% |
| Television Broadcasting (515120) | 108 | 109 |  (1%) | 2.1% |
| Cable and Other Subscription Programming (515210) | 103 | 107 |  (6%) | 2.0% |
| Sound Recording Studios (512240) | 104 | 104 |  (9%) | 2.0% |
| Local Government, Excluding Education and Hospitals (903999) | 97 | 97 | 6% | 1.8% |
| Colleges, Universities, and Professional Schools (Local Government) (903612) | 98 | 95 |  (8%) | 1.8% |
| Temporary Help Services (561320) | 90 | 90 | 8% | 1.7% |
| Custom Computer Programming Services (541511) | 84 | 85 | 15% | 1.6% |

*Source: EMSI 2018.4*

**Table 6. Top Employers Posting Theatrical Technologies Occupations in Bay and North Bay Sub-Region (Jan. 2018 - Dec 2018)**

| Employer | Bay | Employer | Bay | Employer | North Bay |
| --- | --- | --- | --- | --- | --- |
| Psav | 65 | City Palo Alto | 7 | Psav Presentation Services | 7 |
| Psav Presentation Services | 65 | Newgig | 7 | Psav | 4 |
| Apple Inc. | 64 | Stanford University | 7 | Audiovisions | 2 |
| Google Inc. | 21 | Chabot College | 6 | Drapinski Tv & Audio Inc | 2 |
| Amazon | 17 | Macy's | 6 | Technical Visionaries | 2 |
| Bluemercury Incorporated | 14 | Make Up For Ever | 6 | Telltale Games | 2 |
| Outsource | 14 | Nyx Professional Makeup | 6 | Telltale, Inc | 2 |
| Diversified | 13 | Avidex | 5 | US Department of Homeland Security | 2 |
| Facebook | 13 | CBS Broadcasting | 5 | Audio Visual Management Solutions | 1 |
| Whitlock | 11 | Chabot Las Positas Community College District | 5 | Bluemercury Incorporated | 1 |
| Encore Event Technologies | 10 | Compass Group | 5 | Charlotte Tilbury Beauty, Inc | 1 |
| Audio Visual Management Solutions | 9 | Disney | 5 | Disney | 1 |
| Av Services Incorporated | 9 | Fortinet Incorporated | 5 | Estee Lauder Company | 1 |
| Amazon Lab126 | 8 | One Workplace | 5 | First American Corporation | 1 |

*Source: Burning Glass*

# Educational Supply

There are six community colleges in the Bay Region issuing 12 awards annually on TOP 1006.00 - Technical Theater and no colleges issuing awards in the North Bay Sub-Region on this TOP code.

**Table 7. Awards on TOP 1006.00 - Technical Theater in the Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Headcount | Associates | Certificates | Total |
| **Chabot** | East Bay | 26 |  |  |  |
| **Diablo Valley** | East Bay | 152 | 1 | 1 | 2 |
| **Foothill** | Silicon Valley | 82 | 3 | 0 | 3 |
| **Las Positas** | East Bay | 27 |  |  |  |
| **Marin** | North Bay | 41 |  |  |  |
| **Monterey** | Santa Cruz & Monterey | 11 | 0 | 1 | 1 |
| **Ohlone** | East Bay | 113 | 0 |  | 0 |
| **San Francisco** | Mid-Peninsula | 36 |  |  |  |
| **Santa Rosa** | North Bay | 86 |  |  |  |
| **Solano** | North Bay | 47 |  |  |  |
| **West Valley** | Silicon Valley | 50 | 1 |  | 1 |
| **Chabot** | East Bay | 26 |  |  |  |
| **Diablo Valley** | East Bay | 152 | 1 | 1 | 2 |
| **Foothill** | Silicon Valley | 82 | 3 | 0 | 3 |
| **Total Bay Region** |  **671**  |  **9**  |  **3**  |  **12**  |
| **Total Mid-Peninsula Sub-Region** |  **174**  |  **-**  |  **-**  |  **-**  |

# *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 522 annual openings for the Theatrical Technologies occupational cluster and 12 annual awards for an annual undersupply of 510 students. In the North Bay Sub-Region, there is also a gap with 203 annual openings and no annual awards for an annual undersupply of 203 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 1006.00 - Technical Theater**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay (All CTE Programs) | College of Marin (All CTE Programs) | State (1006.00) | Bay (1006.00) | North Bay (1006.00) | College of Marin (1006.00) |
| % Employed Four Quarters After Exit | 74% | 65% | 66% | 70% | 86% | n/a |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $10,165 | $7,691 | $11,275 | $4,591 | n/a |
| Median % Change in Earnings | 46% | 48% | 117% | 150% | 171% | n/a |
| % of Students Earning a Living Wage | 63% | 61% | n/a | n/a | n/a | n/a |

*Source: Launchboard Pipeline (version available on 1/9/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for Theatrical Technologies Occupations in Bay Region (Jan 2018 - Dec 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Customer Service | 192 | Upselling Products and Services | 88 | System Design | 49 |
| Video Conferencing | 171 | Python | 84 | Digital Video | 48 |
| Sales | 152 | Project Management | 80 | Consumer Electronics | 47 |
| Repair | 142 | C++ | 76 | Firmware | 47 |
| Digital Signal Processing | 136 | Cisco | 71 | Prototyping | 47 |
| Equipment Operation | 114 | Video Production | 70 | Budgeting | 45 |
| Audio / Visual Knowledge | 112 | Linux | 69 | Digital Audio | 45 |
| Technical Support | 111 | Satisfaction Failure Correction | 67 | Inventory Management | 44 |
| Customer Contact | 107 | Cabling | 63 | Adobe Photoshop | 43 |
| Operations Management | 105 | Music | 61 | Audio mixing | 43 |
| Audio Engineering | 97 | Schematic Diagrams | 60 | Inventory Control | 43 |
| Scheduling | 97 | Predictive / Preventative Maintenance | 59 | Quality Assurance and Control | 43 |
| Broadcast Industry Knowledge | 93 | Wiring | 59 | Power Tools | 41 |
| Software Issue Resolution | 89 | Troubleshooting Technical Issues | 56 | Test Equipment | 41 |
| Audio Systems | 88 | Event Planning | 52 | Product Development | 40 |

*Source: Burning Glass*

**Table 10. Certifications for Theatrical Technologies Occupations in the Bay Region (Jan 2018 - Dec 2018)**

Note: 75% 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 | 243 | Certified A+ Technician | 4 |
| Certified Career Development Facilitator | 17 | Certified Medical Laboratory Technician | 4 |
| Occupational Safety and Health Administration Certification | 15 | Cisco Certified Network Associate (CCNA) | 4 |
| Makeup Artist | 12 | CompTIA Network+ | 3 |
| Cosmetology License | 8 | CompTIA Security+ | 3 |
| Certified Hair Stylist | 6 | Microsoft Certified Professional (MCP) | 3 |
| Audiovisual (AV) Certification | 4 | Security Clearance | 3 |
| CDL Class A | 4 | AutoCAD Certification | 2 |

*Source: Burning Glass*

**Table 11. Education Requirements for Theatrical Technologies 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 |
| High school or vocational training | 232 (40%) |
| Associate Degree | 15 (3%) |
| Bachelor’s Degree or Higher | 329 (57%) |

*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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