

Technical Theater

*Inland Empire/Desert Region (Riverside-San Bernardino-Ontario Metropolitan Statistical Area)
& Los Angeles and Orange Counties*

Summary

- The technical theater occupational group is projected to have **748 job openings** over the next five years (2017-2022) in the Inland Empire/Desert Region.
- The **entry-level wage** for each occupation in the technical theater occupational group is **above the MIT Living Wage estimate of \$12.30 per hour** for a single adult living in the Inland Empire/Desert Region.
- There appears to be an **opportunity for program growth** based on the average annual number of program completions for the selected community college program (**3 average annual community college credentials**) and the annual openings for technical theater occupations in the region (**150 annual job openings**).

Introduction

This report details the occupations relevant to the technical theater program, which provides students with techniques for communicating information, ideas, moods, and feelings through set design and costuming with attention to stagecraft, function, and esthetics. For entertainment-based industries, such as the theater business, Los Angeles and Orange counties are included in the demand analyses due to the proximity to the Inland Empire/Desert Region, as well as the increased job opportunities there. For this particular occupational group, there are nearly 20 times more job openings in Los Angeles and Orange counties than there are in the Inland Empire/Desert Region. The occupations included in the technical theater occupational group are:

- Audio and Video Equipment Technicians
- Costume Attendants
- Makeup Artists, Theatrical and Performance
- Media and Communication Workers, All Other
- Set and Exhibit Designers
- Sound Engineering Technicians

Job Opportunities

In 2017, there were 29,747 technical theater jobs in the Inland Empire/Desert Region and Los Angeles & Orange County combined. This occupational group is projecting flat growth in employment over the next five years. Employers in the region will need to hire 15,329 workers over the five-year projection period (3,066 annually) to backfill jobs that workers are permanently vacating (includes retirements). The Appendix, Tables 1, 2, & 3 show the projected job growth, wages, education, and training required for each of the occupations in this group for the Inland Empire/Desert Region, Los Angeles & Orange County, as well as both geographies combined.

Exhibit 1: Five-year projections for the technical theater occupational group

Region	2017 Jobs	5-Yr % Change (New Jobs)	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Inland Empire/Desert	1,316	7%	748	150	16%
Los Angeles & Orange County	28,431	-1%	14,581	2,916	20%
Combined Total	29,747	0%	15,329	3,066	20%

Source: EMSI 2018.4

Earnings

The entry-level wage for each of the occupations in the technical theater occupational group is above the MIT Living Wage estimate of \$12.30 per hour for a single adult living in the Inland Empire/Desert Region (\$13.96 for Los Angeles & Orange County). These wages are also sufficient for two working adults and one child (\$14.50 per hour, per adult or \$30,160 annually for each adult). Detailed information about the MIT Living Wage Calculator, including additional wage requirements for adults with dependent children, is available on their website:

<http://livingwage.mit.edu/metros/40140>. Exhibit 2 displays wage information by region for this occupational group, sorted in descending order by median wage.

Exhibit 2: Earnings for the technical theater occupational group

Region	Technical Theater Occupations	Entry to Experienced Hourly Earnings Range*	Median Wage*	Avg. Annual Earnings
Inland Empire/Desert	Makeup Artists, Theatrical and Performance	\$25.66 to \$31.19	\$28.70	\$59,700
	Sound Engineering Technicians	\$24.88 to \$31.56	\$28.25	\$61,700
	Media and Communication Workers, All Other	\$21.54 to \$34.64	\$26.31	\$59,800
	Set and Exhibit Designers	\$17.14 to \$24.14	\$20.79	\$43,600
	Costume Attendants	\$14.90 to \$21.83	\$18.29	\$42,000
	Audio and Video Equipment Technicians	\$13.53 to \$19.13	\$15.65	\$35,800
Los Angeles & Orange County	Sound Engineering Technicians	\$21.60 to \$48.16	\$30.46	\$78,500
	Makeup Artists, Theatrical and Performance	\$16.59 to \$52.51	\$29.90	\$72,700
	Media and Communication Workers, All Other	\$15.35 to \$38.51	\$25.41	\$59,100
	Set and Exhibit Designers	\$20.42 to \$35.66	\$24.82	\$61,800
	Audio and Video Equipment Technicians	\$16.47 to \$31.71	\$21.01	\$53,000
	Costume Attendants	\$16.53 to \$28.24	\$20.41	\$49,200

Source: EMSI 2018.4

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage.

Job Postings, Employers, Skills, and Education

Exhibit 3 shows the number of job ads posted during the last 12 months along with the regional and national average time to fill for both regions combined. On average, open positions for the technical theater occupational group take 48 days to fill in the Inland Empire/Desert Region and Los Angeles & Orange counties combined. This is seven days longer than the national average, indicating that open positions are more difficult to fill locally. Time to fill data was not available for media and communication workers, all other. Also, due to the low number of job postings for media and communication workers, all other, this occupation has been omitted from Exhibits 4 and 5.

Exhibit 3: Job ads and time to fill, Inland Empire/Desert Region and Los Angeles & Orange counties, Dec 2017 – Nov 2018

Technical Theater Occupations	Job Ads	Regional Average Time to Fill (Days)	National Average Time to Fill (Days)
Audio and Video Equipment Technicians	692	44	35
Sound Engineering Technicians	265	58	46
Makeup Artists, Theatrical and Performance	211	50	42
Set and Exhibit Designers	49	30	24
Costume Attendants	17	40	34
Media and Communication Workers, All Other	2	N/A	N/A
Total	1,236	-	-

Source: Burning Glass – Labor Insights

Exhibit 4 displays the employers posting the most job ads during the last 12 months.

Exhibit 4: Employers posting job ads for technical theater occupations, Inland Empire/Desert Region and Los Angeles & Orange counties, Dec 2017 – Nov 2018

Technical Theater Occupations	Top Employers
Audio and Video Equipment Technicians (n=564)	<ul style="list-style-type: none"> PSAV Presentation Services 5 STAR Audio Visual
Sound Engineering Technicians (n=180)	<ul style="list-style-type: none"> Activision Extron Electronics
Makeup Artists, Theatrical and Performance (n=158)	<ul style="list-style-type: none"> Blushington Avon Products, Inc.
Set and Exhibit Designers (n=28)	<ul style="list-style-type: none"> Applied Minds Interactive Adventures
Costume Attendants (n=9)	<ul style="list-style-type: none"> Universal Studios Los Angeles Opera

Source: Burning Glass – Labor Insights

Exhibit 5 lists the in-demand skills that employers are seeking when looking for workers to fill technical theater positions. The skills reported in job postings may be utilized as a helpful guide for curriculum development. Specialized skills are occupation-specific skills employers are requesting for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is commonly referred to as “soft skills.”

Exhibit 5: Skills in demand for technical theater occupations, Inland Empire/Desert Region and Los Angeles & Orange counties, Dec 2017 – Nov 2018

Technical Theater Occupations	Specialized skills	Employability skills
Audio and Video Equipment Technicians (n=595)	<ul style="list-style-type: none"> • Equipment Operation • Software Issue Resolution • Repair 	<ul style="list-style-type: none"> • Troubleshooting • Communication Skills • Building Effective Relationships
Sound Engineering Technicians (n=188)	<ul style="list-style-type: none"> • Broadcast Industry Knowledge • Pro Tools • Repair 	<ul style="list-style-type: none"> • Communication Skills • Troubleshooting • Editing
Makeup Artists, Theatrical and Performance (n=121)	<ul style="list-style-type: none"> • Customer Service • Sales • Hair Styling 	<ul style="list-style-type: none"> • Teamwork/Collaboration • Communication Skills • Creativity
Set and Exhibit Designers (n=30)	<ul style="list-style-type: none"> • Budgeting • Painting • Art Direction 	<ul style="list-style-type: none"> • Creativity • Communication Skills • Detail-Oriented
Costume Attendants (n=8)	<ul style="list-style-type: none"> • Sewing • Wardrobe Maintenance • Cleaning 	<ul style="list-style-type: none"> • Communication Skills • Physical Abilities • Meeting Deadlines

Source: Burning Glass – Labor Insights

Exhibit 6 displays the entry-level education typically required to enter each occupation according to the Bureau of Labor Statistics, educational attainment for incumbent workers with “some college, no degree” and an “associate degree” according to the U.S. Census, and the minimum advertised education requirement requested by employers in online job ads. N/A indicates that there were too few job postings to obtain educational attainment information.

Exhibit 6: Educational attainment and online job ads with minimum advertised education requirements for technical theater occupations, Inland Empire/Desert Region and Los Angeles & Orange counties, Dec 2017 – Nov 2018

Occupation	Typical Entry-Level Education Requirement	Two-Year Postsecondary Level of Educational Attainment*	Minimum Advertised Education Requirement from Job Ads			
			Number of Job Postings (n=)	High school diploma or vocational training	Associate degree	Bachelor's degree or higher
Audio and Video Equipment Technicians	Postsecondary nondegree award	46%	376	70%	7%	23%
Sound Engineering Technicians	Postsecondary nondegree award	46%	88	14%	7%	79%
Makeup Artists, Theatrical and Performance	Postsecondary nondegree award	29%	43	88%	-	12%
Set and Exhibit Designers	Bachelor's degree	29%	14	7%	14%	79%
Costume Attendants	High school diploma or equivalent	37%	1	100%	-	-
Media and Communication Workers, All Other	High school diploma or equivalent	32%	-	-	-	-

Source: EMSI 2018.4, Current Population Survey, Burning Glass – Labor Insights

*Percentage of incumbent workers with a Community College Credential or Some Postsecondary Coursework

Student Completions

Exhibit 7 shows the annual average regional community college credentials (associate degrees and certificates) conferred during the three academic years between 2014 and 2017, with the relevant TOP code as well as the program titles used at each college, sourced from the Chancellor’s Office Curriculum Inventory (COCI). Please note, a credential is not equivalent to a single person in search of a job opening since a student may earn more than one award, such as an associate degree in addition to a certificate. Community College student outcome information is from the CTE LaunchBoard based on the selected TOP code(s) and region.

Exhibit 7: Annual average community college student completions for the technical theater program in the Inland Empire/Desert Region

1006.00 – Technical Theater	Annual Community College Headcount (2016-17)	Community College Annual Average Credentials (2014-17)
Chaffey – Technical Theatre	156	
Crafton Hills	30	
Mt. San Jacinto – Technical Theater	55	
Associate Degree		1
Certificate 30 to < 60 semester units		2
Riverside	62	
San Bernardino	17	
Victor Valley	34	
Total CC Headcount (2016-17)	354	
Total annual average community college credentials		3

Source: LaunchBoard, IPEDS, COCI

1006.00 –Technical Theater program Strong Workforce outcomes in the Inland Empire/Desert Region in the academic year 2014-15 [unless noted otherwise]:

- Number of course enrollments: 497 (California median: 96) [2016-17]
- Number of students who transferred to a 4-year institution: 16 (CA: 14) [2015-16]
- Employed in the second fiscal quarter after exit: 76% (CA: 69%)
- Median earnings in the second fiscal quarter after exit : \$3,723 (CA: \$4,208)
- Employed in the fourth fiscal quarter after exit: 71% (CA: 69%)
- Median annual earnings: \$10,639 (CA: \$13,195)
- Median change in earnings: N/A (CA: 117%) [2015-16]
- Attained a living wage: N/A (CA: 0%) [2015-16]



Sources

O*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard

MIT Living Wage Calculator

Chancellor's Office Curriculum Inventory (COCI, version 2.0)

The Integrated Postsecondary Education Data System (IPEDS)

Taxonomy of Programs, 6th edition

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Appendix: Occupation definitions, sample job titles, five-year projections, and earnings for technical theater occupations

Occupation Definitions (SOC code), Education and Training Requirement, Community College Education Attainment

Set and Exhibit Designers (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.

Sample job titles: Design Chief, Designer, Display Coordinator, Exhibit Designer, Exhibit Preparator, Production Designer, Scenic Designer, Set Decorator, Set Designer, Show Design Supervisor

Entry-Level Educational Requirement: Bachelor's degree

Training Requirement: None

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 29%

Media and Communication Workers, All Other (27-3099)

All media and communication workers not listed separately.

Sample job titles: Audience Coordinator, Audio-Visual Specialist, Continuity Manager, Graphologist, Reader, Script Manager, Stage Technician

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: Less than one-month on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 32%



Audio and Video Equipment Technicians (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.

Sample job titles: *Audio Technician, Audio Visual Specialist, Audio Visual Technician, Master Control Operator (MCO), Media Specialist, Media Technician, Multimedia Educational Specialist, Operations Technician, Stagehand, Video Technician*

Entry-Level Educational Requirement: Postsecondary nondegree award

Training Requirement: Less than one-month on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 46%

Sound Engineering Technicians (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.

Sample job titles: *Audio Engineer, Audio Operator, Broadcast Engineer, Broadcast Technician, Master Control Operator, Mixer, Recording Engineer, Sound Engineer, Sound Technician, Studio Engineer*

Entry-Level Educational Requirement: Postsecondary nondegree award

Training Requirement: Less than one-month on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 46%



Costume Attendants (39-3092)

Select, fit, and take care of costumes for cast members, and aid entertainers. May assist with multiple costume changes during performances.

Sample job titles: *Costume Draper, Costume Seamstress, Costume Shop Manager, Costumer, Draper, Dresser, Wardrobe Assistant, Wardrobe Attendant, Wardrobe Manager, Wardrobe Supervisor*

Entry-Level Educational Requirement: High school diploma or equivalent

Training Requirement: Less than one-month on-the-job training

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 37%

Makeup Artists, Theatrical and Performance (39-5091)

Apply makeup to performers to reflect period, setting, and situation of their role.

Sample job titles: *Commercial Makeup Artist, Hair and Makeup Designer, Makeup Artist, Prosthetic Makeup Designer, Special Effects Makeup Artist, Special Makeup Effects Artist*

Entry-Level Educational Requirement: Postsecondary nondegree award

Training Requirement: None

Percentage of incumbent workers with a Community College Award or Some Postsecondary Coursework: 29%



Table 1. 2017 to 2022 job growth, wages, education, and training for the technical theater occupational group, Inland Empire/Desert Region

Occupation (SOC)	2017 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage*	Median Hourly Wage*	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required
Audio and Video Equipment Technicians (27-4011)	854	66	8%	92	\$13.53 to \$19.13	\$15.65	\$35,800	Postsecondary nondegree award & less than 1 month
Media and Communication Workers, All Other (27-3099)	180	11	6%	19	\$21.54 to \$34.64	\$26.31	\$59,800	High school diploma or equivalent & less than 1 month
Sound Engineering Technicians (27-4014)	114	1	1%	11	\$24.88 to \$31.56	\$28.25	\$61,700	Postsecondary nondegree award & less than 1 month
Set and Exhibit Designers (27-1027)	74	5	7%	8	\$17.14 to \$24.14	\$20.79	\$43,600	Bachelor's degree & none
Costume Attendants (39-3092)	64	3	5%	15	\$14.90 to \$21.83	\$18.29	\$42,000	High school diploma or equivalent & less than 1 month
Makeup Artists, Theatrical and Performance (39-5091)	30	2	7%	4	\$25.66 to \$31.19	\$28.70	\$59,700	Postsecondary nondegree award & none
Total	1,316	90	7%	150	-	-	-	-

Source: EMSI 2018.4

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage



Table 2. 2017 to 2022 job growth, wages, education, and training for the technical theater occupational group, Los Angeles/Orange counties

Occupation (SOC)	2017 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage*	Median Hourly Wage*	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required
Audio and Video Equipment Technicians (27-4011)	11,405	242	2%	1,115	\$16.47 to \$31.71	\$21.01	\$53,000	Postsecondary nondegree award & less than 1 month
Media and Communication Workers, All Other (27-3099)	6,654	(235)	(4%)	610	\$15.35 to \$38.51	\$25.41	\$59,100	High school diploma or equivalent & less than 1 month
Sound Engineering Technicians (27-4014)	4,353	(174)	(4%)	398	\$21.60 to \$48.16	\$30.46	\$78,500	Postsecondary nondegree award & less than 1 month
Set and Exhibit Designers (27-1027)	2,880	(42)	(1%)	278	\$20.42 to \$35.66	\$24.82	\$61,800	Bachelor's degree & none
Makeup Artists, Theatrical and Performance (39-5091)	1,899	(65)	(3%)	219	\$16.59 to \$52.51	\$29.90	\$72,700	Postsecondary nondegree award & none
Costume Attendants (39-3092)	1,240	57	5%	296	\$16.53 to \$28.24	\$20.41	\$49,200	High school diploma or equivalent & less than 1 month
Total	28,431	(217)	(1%)	2,916	-	-	-	-

Source: EMSI 2018.4

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage



Table 3. 2017 to 2022 job growth, wages, education, and training for the technical theater occupational group, Inland Empire/Desert Region and Los Angeles/Orange Region combined

Occupation (SOC)	2017 Jobs	5-Yr Change	5-Yr % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage*	Median Hourly Wage*	Average Annual Earnings	Typical Entry-Level Education & On-The-Job Training Required
Audio and Video Equipment Technicians (27-4011)	12,259	308	3%	1,208	\$16.05 to \$30.55	\$20.57	\$51,900	Postsecondary nondegree award & less than 1 month
Media and Communication Workers, All Other (27-3099)	6,834	(224)	(3%)	629	\$15.46 to \$38.39	\$25.47	\$59,100	High school diploma or equivalent & less than 1 month
Sound Engineering Technicians (27-4014)	4,466	(172)	(4%)	409	\$21.63 to \$47.51	\$30.37	\$78,100	Postsecondary nondegree award & less than 1 month
Set and Exhibit Designers (27-1027)	2,954	(37)	(1%)	286	\$20.31 to \$35.19	\$24.67	\$61,300	Bachelor's degree & none
Makeup Artists, Theatrical and Performance (39-5091)	1,929	(63)	(3%)	223	\$16.71 to \$52.20	\$29.84	\$72,500	Postsecondary nondegree award & none
Costume Attendants (39-3092)	1,304	61	5%	311	\$16.44 to \$27.93	\$20.28	\$48,900	High school diploma or equivalent & less than 1 month
Total	29,747	(127)	(0%)	3,066	-	-	-	-

Source: EMSI 2018.4

*Entry Hourly is 25th percentile wage, the median is 50th percentile wage, experienced is 75th percentile wage