



Technical Theater

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Prepared by the Los Angeles/Orange County Center of Excellence for Labor Market Research

Occupation Codes and Descriptions

Currently, there are three occupations in the standard occupational classification (SOC) system that are related to the study of technical theater. The occupation titles and descriptions, as well as reported job titles are included in Exhibit 1.

Exhibit 1 – Occupations, descriptions and sample job titles

SOC (6-Digit) Code	Title	Description	Sample of Reported Job Titles
27-4011	Audio and Video Equipment Technicians	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.	Audio Technician, Audio Visual Specialist, Audio Visual Technician, Audio/Visual Manager, Broadcast Engineer, Master Control Operator (MCO), Operations Technician, Production Assistant, Stagehand, Videographer
27-4014	Sound Engineering Technicians	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.	Audio Engineer, Audio Operator, Broadcast Engineer, Broadcast Technician, Master Control Operator, Mixer, Recording Engineer, Sound Editor, Sound Engineer, Sound Technician
27-1027	Set and Exhibit Designers	Design special exhibits and movie, television, and theater sets. May study scripts, confer with directors, and conduct research to determine appropriate architectural styles.	Design Chief, Designer, Display Coordinator, Exhibit Designer, Exhibit Preparator, Production Designer, Scenic Designer, Set Decorator, Set Designer, Show Design Supervisor

Source: O*NET Online

Current and Future Employment

In Los Angeles County, the number of jobs related to technical theater is expected to increase by 8% over the next five years. More than 630 job opportunities will be available annually for this group of occupations through 2021 due to new job growth and replacement need (e.g., retirements). Exhibit 2 contains detailed employment projections data for these occupations.

Exhibit 2 – Five-year projections for technical theater-related occupations in Los Angeles County

SOC	Description	2016 Jobs	2021 Jobs	2016 - 2021 Change	2016 - 2021 % Change	Annual Openings
27-4011	Audio and Video Equipment Technicians	9,884	10,846	962	10%	389
27-4014	Sound Engineering Technicians	4,222	4,441	219	5%	127
27-1027	Set and Exhibit Designers	2,743	2,987	244	9%	118
		16,849	18,274	1,425	8%	634

Source: Economic Modeling Specialists International (EMSI)

Earnings

In Los Angeles County, the average entry-level wage for technical theater-related occupations range between \$13.22 and \$16.18 per hour, which is above the MIT Living Wage¹ estimate of \$13.08 per hour for a single adult. The average annual earnings for this occupation group in the region range from \$55,834 to \$73,314 per year, assuming full-time employment.

Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry-level hourly earnings is represented by the 10th percentile of wages, median hourly earnings is represented by the 50th percentile of wages, and experienced hourly earnings is represented by the 90th percentile of wages, demonstrating various levels of employment.

¹ MIT Living Wage Calculator. <http://livingwage.mit.edu/>

Exhibit 3 – Earnings for technical theater-related occupation in Los Angeles County, 2016

SOC	Description	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings	Average Annual Earnings
27-4014	Sound Engineering Technicians	\$16.18	\$29.95	\$59.74	\$73,314
27-4011	Audio and Video Equipment Technicians	\$14.05	\$24.14	\$43.63	\$55,834
27-1027	Set and Exhibit Designers	\$13.22	\$23.31	\$45.39	\$59,346

Source: Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the technical theater field. Employer job postings are consulted to understand who is employing technical theater workers, and what they are looking for in potential candidates. To identify job postings related to technical theater, the SOC listed in Exhibit 1 were used.

Top Occupations

In 2016, there were 492 employer postings for technical theater-related occupation. Over half of the postings (59%) were for Audio and Video Equipment Technicians (288 job postings). There were 358 job postings for the same occupation group in 2015, and 215 job postings in 2014.

Exhibit 4 – Top occupations in job postings (n=492)

SOC	Occupation	Job Postings, Full Year 2016
27-4011	Audio and Video Equipment Technicians (27-4011)	288
27-4014	Sound Engineering Technicians (27-4014)	165
27-1027	Set and Exhibit Designers (27-1027)	39

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top job titles for employers posting ads for technical theater are listed in Exhibit 5. Audio Visual Technician was mentioned as the job title in 17% of all relevant job postings (492 postings).

Exhibit 5 –Job titles (n=492)

Title	Job Postings, Full Year 2016
Audio Visual Technician	86
Stage Technician	14
Audio Video Engineer	13
Sound Engineer	10
Sound Mixer	9
Theater Technician	9
Audio/Video Technician	6
Director of Event Technology	6
Broadcast Engineer	5
Broadcast Engineer - Freelance	5

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the field of technical theater. Top employers posting job ads included both government and private employers. The top worksite cities in the region for these occupations were Los Angeles, El Segundo, Burbank, and Santa Monica.

Exhibit 6 – Top employers (n=253)

Employer	Job Postings, Full Year 2016
Psav Presentation Services	58
California State University	14
Fox	5
Freeman	5
CBS Broadcasting	4
City of Los Angeles Department of Recreation And Parks	4

Source: Labor Insight/Jobs (Burning Glass)

Certifications and Skills

Leadership in Energy and Environmental Design (LEED) is the most sought after certification for the occupation of technical theater, and was included in 37% of the postings that specified a certification. Other certifications that were largely present on postings were Certified A+ Technician (13%) and

Certified Audio Engineer (11%). Job-specific skills desired by employers are Microsoft Office, Microsoft Excel, repair, broadcast, and equipment operation.

Exhibit 7 –Job certifications (n=38) and job skills (n=353)

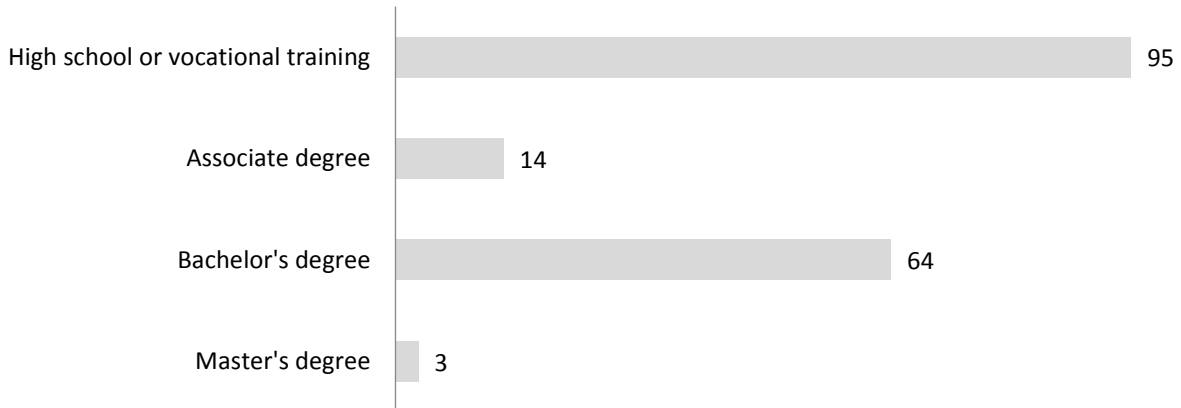
Certifications	Job Postings, Full Year 2016	Skills	Job Postings, Full Year 2016
Leadership In Energy And Environmental Design (LEED)	14	Microsoft Office	74
Certified A+ Technician	5	Microsoft Excel	71
Certified Audio Engineer	4	Repair	65
Certified Energy Auditor	4	Broadcast	61
Commercial Driver's License	3	Equipment Operation	56

Source: Labor Insight/Jobs (Burning Glass)

Advertised Education Levels

Exhibit 8 displays the education level requested by employers in online job ads. The majority of employers were looking for a candidate with high school or vocational training. Approximately 64% of job postings did not specify a level of education.

Exhibit 8 – 2016 Online job ads with minimum advertised education requirements for technical theater-related occupations (n=176)



Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

In Los Angeles County, jobs related to technical theater are most often found in the motion picture and video production industry (57%). Exhibit 9 shows the industries that are the largest employers of technical theater workers in the Los Angeles County.

Exhibit 9 – Industries with the largest number of technical theater jobs (2016)

NAICS (6-Digit)	Industry	Occupation Group Jobs in Industry (2016)	% of Occupation Group in Industry (2016)
512110	Motion Picture and Video Production	9,613	57%
711510	Independent Artists, Writers, and Performers	1,255	7%
512191	Teleproduction and Other Postproduction Services	592	4%
515120	Television Broadcasting	511	3%
512240	Sound Recording Studios	498	3%
512230	Music Publishers	339	2%
611310	Colleges, Universities, and Professional Schools	297	2%

Source: Economic Modeling Specialists International (EMSI)

Education and Training

Exhibit 10 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training, and percentage of workers in the field who hold a community college award or have completed some postsecondary courses. About one-third to nearly one-half of the workforce in each occupation has completed some community college education as their highest level of education.

Exhibit 10 – Education and training requirements, 2015-2020

SOC	Occupation	Typical Entry-Level Education	Typical On-The-Job Training	% of Community College Award Holders or Some Postsecondary Coursework
27-4011	Audio and Video Equipment Technicians	Bachelor's degree	None	45%
27-4014	Sound Engineering Technicians	Postsecondary Certificate	Short-term on-the-job training	45%
27-1027	Set and Exhibit Designers	Postsecondary Certificate	Short-term on-the-job training	30%

Source: Economic Modeling Specialists International, Bureau of Labor Statistics Employment Projections (Educational Attainment)

Currently, there are 14 community colleges in Los Angeles County that train students in programs related to the field of technical theater. Exhibit 11 displays the headcount and annual average community college awards for each of the colleges training in this field. Headcount is the actual number of students enrolled, regardless of credit hours. It is also important to note that an award is not

equivalent to a single person in search of a job opening, since a student may earn more than one award (e.g. an associate degree and a certificate).

Between 2012 and 2015, the total annual average community college awards conferred was 26 (4 associate degrees and 22 certificates) across one program: Technical Theater (1006.00).

Exhibit 11 – CCC Student Awards (by TOP and College)

TOP Code	Program	College	CCC Headcount	CCC Associate Degrees	CCC Certificates	Total Average CC Awards
1006.00	Technical Theater	Cerritos	160	-	-	-
		Citrus	214	-	2	2
		East LA	218	-	3	3
		El Camino	74	-	2	2
		Glendale	83	-	-	-
		LA City	205	-	5	5
		LA Harbor	53	-	-	-
		LA Mission	98	-	-	-
		LA Pierce	102	4	6	10
		LA Valley	87	-	-	-
		Mt San Antonio	26	-	-	-
		Pasadena	187	-	2	2
		Rio Hondo	77	-	-	-
		Santa Monica	238	-	2	2
TOTAL			1,821	4	22	26

Source: California Community Colleges Chancellor’s Office MIS Data Mart

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Technical Theater Taxonomy of Program (TOP) code (1006.00) in Los Angeles County for the 2013 and 2014 academic year.

- The median annual wage after program completion is \$10,077
- 21% of students are earning a living wage
- 57% of students are employed within six months after completing a program

Source: CTE LaunchBoard

Program Recommendation

This report was compiled by the Los Angeles/Orange County Center of Excellence to provide regional labor market data for the program recommendation of Technical Theater. This report is intended to

help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Based on the data, the COE has determined there is an unmet need for the Technical Theater program in Los Angeles County. Reasons include:

- Technical Theater occupations are forecasted to increase by 8% over the next five years, resulting in over 600 job openings annually.
- On average, 26 awards (associate degrees and certifications) are conferred each year, signaling a need for more technical theater programs to satisfy the current job demand
- 57% of students are employed within six months after completing a program

Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

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Notes

Data included in this analysis represents the labor market demand for positions most closely related to technical theater. Standard occupational classification (SOC) codes were chosen based on the national education level required for employment (associate degree and postsecondary certificate) as well as the proportion of current workers who hold a community college award or have had some community college training. This selection process narrows the labor market analysis to the most relevant employment opportunities for students with community college education and/or training.

Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and should not be used to establish current job openings, because the numbers may include duplicate job postings or postings intended to gather a pool of applicants. Real-time labor market information can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions.