

**Labor Market Assessment: 0956.00 – Manufacturing and Industrial Technology
Design Technology (Associate Degree; Certificate)**
Los Angeles Center of Excellence, April 2022

Summary

Program Endorsement:	Endorsed: All Criteria Met <input type="checkbox"/>	Endorsed: Some Criteria Met <input checked="" type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/> (See comments below)	
Living Wage: (Entry-Level, 25th)	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Education:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Emerging Occupation(s)			
Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>	

The Los Angeles Center of Excellence for Labor Market Research (LA COE) prepared this report to provide regional labor market supply and demand data related to three middle-skill occupations:

- *Architectural and civil drafters (17-3011);*
- *Mechanical drafters (17-3013); and*
- *Calibration technologists and technicians and engineering technologists and technicians, except drafters, all other (17-3098).*

Middle-skill occupations typically require some postsecondary education, but less than a bachelor’s degree.¹ 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 community college programs that align with the relevant occupations.

Based on the available data, there does not appear to be a supply gap for the occupations of interest. However, the supply is within the COE’s acceptable margin (25% over or under the number of annual openings) and is therefore considered “supply met” rather than a “supply gap.” While this program does not meet the traditional supply/demand endorsement criteria, there may be demand for these workers from local employers that is not reflected in traditional labor market data. For this reason, real-time labor market data is included in this report as well – to provide a more nuanced view of the regional job market for these middle-skill occupations related to design/drafting technology. In addition, entry-level wages exceed the self-sufficiency standard in both Los Angeles and Orange Counties, and the Bureau of Labor Statistics lists an associate degree as the typical entry-level education for the occupations in this report. **Therefore,**

¹ The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor’s degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

due to some of the criteria being met, the LA COE endorses this proposed program. Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be more than **935 jobs available annually** in the region due to retirements and workers leaving the field, **which is more than the 932 awards conferred annually** by educational institutions in the region.
 - Although there are nearly as many awards conferred as job openings, the data suggests that the **demand has been met for these occupations within the LA/OC region** since the three-year average number of awards (supply) is within the COE's 25% margin of annual job openings (demand).
 - Over the past 12 months, there were **1,463 online job postings related to these drafting occupations**. The highest number of job postings were for manufacturing technicians, production technicians, engineering technicians, engineers, and field service technicians.
- **Living Wage Criteria** – In Los Angeles County, all of the occupations of interest have **entry-level wages above** the self-sufficiency standard wage (\$18.10/hour).²
- **Educational Criteria** – The Bureau of Labor Statistics (BLS) lists an **associate degree** as the typical entry-level education for each of the occupations in this report.
 - Furthermore, national-level educational attainment data indicates that **between 51% and 57% of workers in the field have completed some college or an associate degree**.

Supply:

- Between 2017 and 2020, **21 community colleges** in the LA/OC region issued awards in programs that have historically trained for the occupations of interest, conferring an average of **920 awards**.
- Between 2016 and 2019, non-community college institutions in the LA/OC region conferred an average of **12 awards in relevant programs**.

² Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California. For more information, visit: <http://selfsufficiencystandard.org/california>.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for the design/drafting occupations of interest. In the Los Angeles/Orange County region, the number of jobs related to these occupations is projected to decrease by 3% through 2025. However, there will be more than 900 job openings per year through 2025 due to retirements and workers leaving the field.

This report includes employment projection data by Emsi which uses EDD information. Emsi's projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the full impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the full impacts of COVID-19 into account.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties³

Geography	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	Annual Openings
Los Angeles	6,502	6,247	(255)	(4%)	597
Orange	3,621	3,581	(40)	(1%)	339
Total	10,123	9,829	(295)	(3%)	935

Wages

The labor market endorsement in this report considers the hourly wages for the drafting occupations of interest in Los Angeles County, as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the LA/OC region. Detailed wage information, by county, is included in Appendix A.

Los Angeles County – All three of the occupations in this report have entry-level wages **above** the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). While typical entry-level hourly wages are in a range between \$22.51 and \$25.80, experienced workers can expect to earn wages between \$36.69 and \$38.72.

Orange County – All three of the occupations in this report have entry-level wages **above** the self-sufficiency standard wage for one adult (\$20.63 in Orange County). While typical entry-level hourly wages are in a range between \$23.45 and \$26.79, experienced workers can expect to earn wages between \$37.95 and \$39.49.

Job Postings

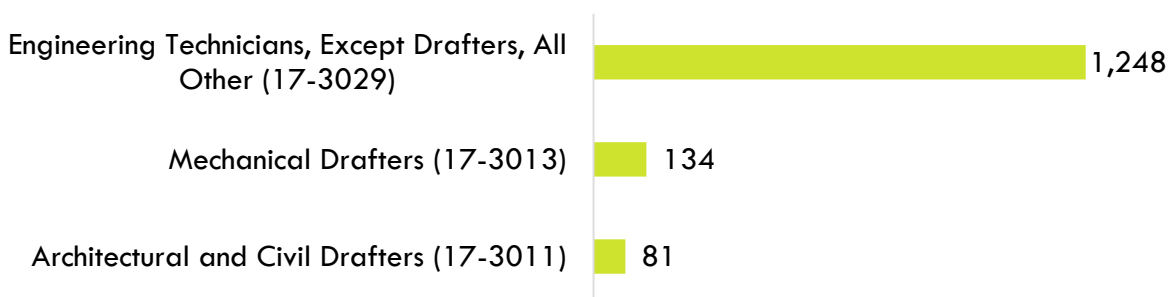
Over the past 12 months, there have been 1,463 online job postings related to the drafting occupations studied in this report. Exhibit 2 displays the number of job postings by occupation. The majority of job postings (85%) were for *engineering technicians, except drafters, all other*, followed by *mechanical drafters* (9%) and *architectural and civil drafters* (6%). The highest number

³ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

of job postings were for manufacturing technicians, production technicians, engineering technicians, engineers, and field service technicians. The top skills were DevOps, information technology industry knowledge, computer engineering, configuration management, and engineering design. The top employers, by number of job postings, in the region were Traditional, Takeda Pharmaceuticals North America, and L3Harris.

It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the full impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.

Exhibit 2: Job postings by occupation (last 12 months)



Educational Attainment

The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for the three occupations in this report. Furthermore, national-level educational attainment data indicates that between 51% and 57% of workers in the field have completed some college or an associate degree. Of the 56% of these drafting job postings listing a minimum education requirement in the greater Los Angeles/Orange County region, 82% (669) requested high school or vocational training, and 18% (143) requested an associate degree.

Educational Supply

Community College Supply – Exhibit 3 shows the annual and three-year average number of awards conferred by community colleges in programs that have historically trained for the occupations of interest. The colleges with the most completions in the region are Pasadena, Mt. San Antonio, and Cerritos.

Exhibit 3: Regional community college awards (certificates and degrees), 2017-2020

TOP	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
0201.00	Architecture and Architectural Technology	Cerritos	17	24	44	28
		Citrus	2	3	6	4
		Compton	-	2	-	1
		East LA	34	57	25	39
		El Camino	35	14	21	23
		Glendale	4	6	6	5

TOP	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
		LA Harbor	5	5	4	5
		LA Pierce	8	9	4	7
		LA Trade-Tech	8	11	8	9
		LA Valley	4	1	3	3
		Long Beach	10	14	13	12
		Mt San Antonio	82	97	51	77
		Pasadena	11	16	18	15
		Rio Hondo	19	20	3	14
		LA Subtotal	239	279	206	241
		Fullerton	8	5	12	8
		Orange Coast	82	40	59	60
		Saddleback	12	15	8	12
		OC Subtotal	102	60	79	80
Supply Subtotal/Average			341	339	285	322
0924.00	Engineering Technology, General (requires Trigonometry)	Cerritos	23	26	15	21
		East LA	-	-	1	0
		Glendale	17	14	7	13
		Mt San Antonio	-	-	2	1
		Pasadena	173	176	216	188
		LA Subtotal	213	216	241	223
		Santa Ana	1	1	3	2
OC Subtotal	1	1	3	2		
Supply Subtotal/Average			214	217	244	225
0953.00	Drafting Technology	Cerritos	48	35	14	32
		Citrus	6	13	15	11
		East LA	38	36	7	27
		El Camino	15	21	9	15
		LA Harbor	1	3	-	1
		LA Pierce	7	5	2	5
		LA Valley	4	1	3	3
		Long Beach	-	-	1	0
		Mt San Antonio	34	42	23	33
		Pasadena	21	5	6	11

TOP	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
		Rio Hondo	93	14	12	40
		LA Subtotal	267	175	92	178
		Fullerton	11	5	4	7
		Golden West	18	57	9	28
		Irvine	-	2	10	4
		Saddleback	2	1	2	2
		Santa Ana	23	15	27	22
		OC Subtotal	54	80	52	62
		Supply Subtotal/Average	321	255	144	240
0953.10	Architectural Drafting	Citrus	-	-	2	1
		Long Beach	8	7	9	8
		Rio Hondo	-	-	8	3
		LA Subtotal	8	7	19	11
		Fullerton	4	3	1	3
		Santa Ana	3	3	1	2
		OC Subtotal	7	6	2	5
		Supply Subtotal/Average	15	13	21	16
0953.20	Civil Drafting	Rio Hondo	2	1	3	2
		LA Subtotal	2	1	3	2
		Irvine	1	1	3	2
		OC Subtotal	1	1	3	2
		Supply Subtotal/Average	3	2	6	4
0953.40	Mechanical Drafting	Glendale	-	5	11	5
		LA Pierce	-	1	-	0
		LA Valley	8	5	9	7
		Long Beach	23	8	10	14
		LA Subtotal	31	19	30	27
		Irvine	-	4	5	3
		OC Subtotal	-	4	5	3
		Supply Subtotal/Average	31	23	35	30
0956.00	Manufacturing and Industrial Technology	Cerritos	6	2	-	3
		Compton	2	-	-	1
		El Camino	3	2	-	2

TOP	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
		Glendale	-	-	2	1
		LA Trade	-	5	9	5
		LA Valley	2	3	9	5
		Mt San Antonio	9	13	14	12
		LA Subtotal	22	25	34	27
		Fullerton	11	9	38	19
		Irvine	1	3	-	1
		Saddleback	9	11	7	9
		Santa Ana	1	-	3	1
		Santiago Canyon	27	41	10	26
		OC Subtotal	49	64	58	57
		Supply Subtotal/Average	71	89	92	84
		Supply Total/Average	996	938	827	920

Non-Community College Supply – For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that may provide training programs for the occupations in this report. Exhibit 4 shows the annual and three-year average number of awards conferred in relevant programs. Due to different data collection periods, the most recent three-year period of available data is from 2016 to 2019. Between 2016 and 2019, non-community college institutions in the region conferred an average of 12 awards.

Exhibit 4: Regional non-community college awards, 2016-2019

CIP	Program	Institution	2016-17 Awards	2017-18 Awards	2018-19 Awards	3-Year Average
15.1302	CAD/CADD Drafting and/or Design Technology/Technician	Los Angeles ORT College	10	10	17	12
		Supply Total/Average	10	10	17	12

Appendix A: Occupational demand and wage data by county

Exhibit 5. Los Angeles County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Architectural and Civil Drafters (17-3011)	2,698	2,593	(105)	(4%)	248	\$25.80	\$29.93	\$36.69
Mechanical Drafters (17-3013)	1,236	1,122	(114)	(9%)	112	\$22.51	\$28.93	\$38.31
Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other (17-3098)	2,569	2,532	(36)	(1%)	237	\$23.32	\$29.52	\$38.72
Total	6,502	6,247	(255)	(4%)	597	-	-	-

Exhibit 6. Orange County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Architectural and Civil Drafters (17-3011)	1,613	1,603	(10)	(1%)	153	\$26.79	\$31.01	\$37.95
Mechanical Drafters (17-3013)	710	676	(34)	(5%)	65	\$23.45	\$29.96	\$39.49
Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other (17-3098)	1,298	1,302	4	0%	120	\$23.50	\$29.69	\$38.89
Total	3,621	3,581	(40)	(1%)	339	-	-	-

Exhibit 7. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Architectural and Civil Drafters (17-3011)	4,311	4,196	(115)	(3%)	401	Associate degree
Mechanical Drafters (17-3013)	1,946	1,798	(148)	(8%)	177	Associate degree
Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other (17-3098)	3,867	3,834	(32)	(1%)	357	Associate degree
Total	10,123	9,829	(295)	(3%)	935	-

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women's Welfare, University of Washington
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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