

**Labor Market Assessment: 0924.00 – Engineering Technology, General
Engineering Technology (A.S. degree and Certificate 16 to <30 units)
Engineering Technology Advanced (Certificate 30 to <60 units)
Los Angeles County Center of Excellence, May 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 checked="" type="checkbox"/>	No <input type="checkbox"/>	
Living Wage: (Entry-Level, 25th)	Yes <input type="checkbox"/>	No <input checked="" 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 County Center of Excellence for Labor Market Research (LA COE) prepared this report to provide regional labor market supply and demand data related to four occupations:

- *Industrial engineering technologists and technicians (17-3026);*
- *Mechanical engineering technologists and technicians (17-3027);*
- *Calibration technologists and technicians and engineering technologists and technicians, except drafters, all other (17-3098); and*
- *Electrical, electronic, and electromechanical assemblers, except coil winders, tapers, and finishers (51-2028)*

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 appears to be a supply gap in the region for the occupations of interest. Although the majority of annual openings for the occupations studied in this report have entry-level wages below the self-sufficiency standard wage in both Los Angeles and Orange counties, between 29% and 51% of incumbent workers have completed some college or an associate degree. **Therefore, due to some of the criteria being met, the LA COE endorses this proposed program.** Detailed reasons include:

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.

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **2,086 jobs available annually** in the region due to retirements and workers leaving the field, **which is more than the 433 awards conferred annually** by educational institutions in the region.
- **Living Wage Criteria** – In Los Angeles County, the majority (67%) of annual job openings for the occupations of interest have **entry-level wages below the self-sufficiency standard wage** (\$18.10/hour).²
- **Educational Criteria** – In the LA/OC region, the majority of annual job openings (70%) for the occupations of interest typically require a high school diploma or equivalent.
 - However, national-level educational attainment data indicates that **between 29% and 51% of incumbent workers have completed some college or an associate degree.**

Supply:

- Between 2017 and 2020, 19 community colleges in the LA/OC region issued awards in programs that have historically trained for the occupations of interest, conferring an **average of 433 awards.**
- Between 2016 and 2019, there were no non-community college institutions in the LA/OC region that conferred community college-level awards (certificates and/or associate-level degrees) 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 four occupations of interest. In the Los Angeles/Orange County region, the number of jobs related to these occupations is projected to decrease by 4% through 2025. However, there will be nearly 2,100 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	12,541	11,913	(628)	(5%)	1,231
Orange	8,616	8,323	(293)	(3%)	854
Total	21,157	20,236	(921)	(4%)	2,086

Wages

The labor market endorsement in this report considers the hourly wages for the 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 – The majority (67%) of annual openings for the occupations of interest have entry-level wages **below** the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$13.94 and \$26.83. Experienced workers can expect to earn wages between \$20.37 and \$42.93, which are above the self-sufficiency standard wage estimate.

Orange County – The majority (74%) of annual openings for the occupations of interest have entry-level wages **below** the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$15.08 and \$27.74. Experienced workers can expect to earn wages between \$22.03 and \$44.52, which are above the self-sufficiency standard wage estimate.

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.

Job Postings

Over the past 12 months, there have been 9,627 online job postings related to the four occupations of interest. The highest number of job postings were for maintenance technicians, mechanical assemblers, production technicians, manufacturing technicians, and engineering technicians. The top skills were machinery, predictive/preventative maintenance, schematic diagrams, soldering, and hand/power tools. The top employers, by number of job postings, in the region were Boeing, Northrop Grumman, Goodyear, 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.

Educational Attainment

The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

- **Associate degree:** *industrial engineering technologists and technicians (17-3026); mechanical engineering technologists and technicians (17-3027); calibration technologists and technicians and engineering technologists and technicians, except drafters, all other (17-3098)*
- **High school diploma or equivalent:** *electrical, electronic, and electromechanical assemblers, except coil winders, tapers, and finishers (51-2028)*

In the LA/OC region, the majority of annual job openings (70%) typically require a high school diploma or equivalent. However, national-level educational attainment data indicates that between 29% and 51% of incumbent workers have completed some college or an associate degree.

Educational Supply

Community College Supply – Exhibit 2 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 two community colleges with the most completions in the region are Pasadena and LA Trade-Tech.

Exhibit 2: Regional community college awards (certificates and degrees), 2017-2020

TOP	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
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
0934.20	Industrial Electronics	El Camino	1	-	-	0
		LA Subtotal	1	-	-	0
Supply Subtotal/Average			1	-	-	0
0935.00	Electro-Mechanical Technology	Orange Coast	3	2	-	2
		Santa Ana	-	1	8	3
		OC Subtotal	3	3	8	5
Supply Subtotal/Average			3	3	8	5
0945.00	Industrial Systems Technology and Maintenance	LA Harbor	1	1	1	1
		LA Southwest	-	-	9	3
		LA Trade-Tech	94	90	61	82
		Long Beach	1	-	-	0
		West LA	19	14	20	18
		LA Subtotal	115	105	91	104
		Fullerton	2	-	-	1
		Santiago Canyon	6	23	16	15
		OC Subtotal	8	23	16	16
Supply Subtotal/Average			123	128	107	119

TOP	Program	College	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
0956.00	Manufacturing and Industrial Technology	Cerritos	6	2	-	3
		Compton	2	-	-	1
		El Camino	3	2	-	2
		Glendale	-	-	2	1
		LA Trade-Tech	-	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 Valley	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
Supply Total/Average			412	437	451	433

Non-Community College Supply – Between 2016 and 2019, there were no non-community college institutions in the LA/OC region that conferred community college-level awards (certificates and/or associate-level degrees) in relevant programs.

Appendix A: Occupational demand and wage data by county

Exhibit 3. 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)
Industrial Engineering Technologists and Technicians (17-3026)	992	970	(22)	(2%)	91	\$22.55	\$30.66	\$41.72
Mechanical Engineering Technologists and Technicians (17-3027)	919	889	(30)	(3%)	84	\$26.83	\$35.34	\$42.93
Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other (17-3098)	2,569	2,532	(37)	(1%)	237	\$23.32	\$29.52	\$38.72
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers (51-2028)	8,061	7,521	(540)	(7%)	819	\$13.94	\$16.50	\$20.37
Total	12,541	11,913	(628)	(5%)	1,231	-	-	-

Exhibit 4. Orange County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Industrial Engineering Technologists and Technicians (17-3026)	611	601	(10)	(2%)	56	\$24.22	\$32.83	\$44.52
Mechanical Engineering Technologists and Technicians (17-3027)	522	518	(4)	(1%)	48	\$27.74	\$36.38	\$44.08
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
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers (51-2028)	6,186	5,902	(284)	(5%)	630	\$15.08	\$17.85	\$22.03
Total	8,616	8,323	(293)	(3%)	854	-	-	-

Exhibit 5. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Industrial Engineering Technologists and Technicians (17-3026)	1,603	1,571	(32)	(2%)	147	Associate degree
Mechanical Engineering Technologists and Technicians (17-3027)	1,441	1,408	(33)	(2%)	132	Associate degree
Calibration Technologists and Technicians and Engineering Technologists and Technicians, Except Drafters, All Other (17-3098)	3,867	3,834	(33)	(1%)	357	Associate degree
Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers (51-2028)	14,246	13,423	(823)	(6%)	1,450	HS diploma or equivalent
Total	21,157	20,236	(921)	(4%)	2,086	-

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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