CENTER OF EXCELLENCE FOR LABOR MARKET RESEARCH
LOS ANGELES

Labor Market Analysis: 0956.00 – Manufacturing and Industrial Technology

CAM & CNC Lathe Y-Axis; CAM & CNC 3-Axis Mill; CNC & CAM Mill Advanced – Certificate requiring 8 to fewer than 16 semester; Certificate requiring 16 to fewer than 30 semester units

Los Angeles Center of Excellence, July 2025

Program Endorsement:	Endorsed: All Criteria Met ☐	Endorsed: Some Criteria Met ☒	Not Endorsed ☐

Program Endorsement Criteria		
Supply Gap:	Yes ☑	No ☐
Living Wage: (Entry-Level, 25th)	Yes ☐	No ☑
Education:	Yes ☑	No ☐
Emerging Occupation(s)		
	Yes ☐	No ☑

SUMMARY

This report analyzes whether local labor market demand is being met by community college programs aligned with the identified middle-skill occupations[1] or whether a shortage of workers exists. Labor market demand is measured by annual job openings while education supply is measured by the number of awards (degrees and certificates) conferred on average each year.

Based on the available data, there appears to be a supply gap for the four identified middle-skill occupations in the region. While entry-level wages are lower than the self-sufficiency standard wage in both Los Angeles and Orange counties, more than one-third of current workers in the field have completed an associate degree or some college as their highest level of educational attainment.

Recommendation: Due to two of three program endorsement criteria being met, the Los Angeles Center of Excellence for Labor Market Research (LA COE) endorses this proposed program.

Key Findings

Supply Gap

- 2,139 annual job openings are projected in the region through 2028. This number is greater than the three-year average of 360 awards conferred by educational institutions in the region.

[1] Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree. 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.

Living Wage

- 89% of annual job openings for these middle-skill manufacturing technology occupations have entry-level wages **below** Los Angeles County's self-sufficiency standard hourly wage ($24.03/hour).[2]

Educational Attainment

- 88% of the annual job openings typically require a high school diploma or equivalent for middle-skill occupations related to manufacturing technology in the LA/OC region.
- 41%-50% of workers in the field have completed some college or an associate degree, according to national educational attainment data.

Community college supply

- 17 community colleges issued awards related to manufacturing technology in the greater LA/OC region.
- 235 awards (degrees and certificates) were conferred on average each year between 2022 and 2024.

Other postsecondary supply

- 2 educational institutions in the LA/OC region have conferred sub-baccalaureate awards in programs related to manufacturing technology over the past three years.
- 125 awards were conferred on average each year by other postsecondary institutions throughout the greater LA/OC region between 2021 and 2023.

TARGET OCCUPATIONS

LA COE prepared this report to provide regional labor market and postsecondary supply data related to four middle-skill occupations. For full occupation descriptions, please see Appendix.

- ***Industrial Engineering Technologists and Technicians* (17-3026)**[3]
- ***Computer Numerically Controlled Tool Operators* (51-9161)**[4]
- ***Computer Numerically Controlled Tool Programmers* (51-9162)**[5]
- ***Machinists* (51-4041)**[6]

OCCUPATIONAL DEMAND

Exhibit 1 shows the five-year occupational demand projections for these middle-skill manufacturing technology occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to increase by 1% through 2028. There will be more than 2,100 job openings per year through 2028 due to job growth and

[2] Center for Women's Welfare, University of Washington. (2024). *The self-sufficiency standard for California 2024*. http://selfsufficiencystandard.org/California.
[3] Industrial Engineering Technologists and Technicians (bls.gov)
[4] Metal and Plastic Machine Workers (bls.gov)
[5] Ibid.
[6] Machinists and Tool and Die Makers (bls.gov)

replacements. The majority of jobs in 2023 for these middle-skill occupations (64%) were located in Los Angeles County.

Exhibit 1: Current employment and occupational demand, Los Angeles and Orange counties[7]

Geography	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	Annual Openings
Los Angeles	13,463	13,640	178	1%	1,391
Orange	7,535	7,560	25	0%	747
Total	**20,998**	**21,201**	**203**	**1%**	**2,139**

Detailed Occupation Data

Exhibit 2 displays the current employment and projected occupational demand for each of the target occupations in Los Angeles County. Positive scores for automation resilience[8] reflect a lower-than-average threat of the occupation(s) being replaced by automation, while negative scores reflect a greater-than-average risk of automation. The average percentage of workers aged 55+ across all occupations in the Los Angeles/Orange County region is 26%; occupations with a larger share of workers aged 55 and older typically have greater replacement needs to offset the amount of impending retirements. On average, 81% of workers across all occupations in California are employed full-time.

Exhibit 2: Detailed employment and occupational demand, Los Angeles County[9]

Occupation	2023 Jobs	2028 Jobs	5-Yr % Change	Annual Openings	Automation Resilience	% Aged 55 and older	% Full Time Workers
Industrial Engineering Technologists and Technicians	801	796	(1%)	74	6.0	33%	Data unavail.
Machinists	5,760	6,124	6%	669	(15.2)	42%	100%
Computer Numerically Controlled Tool Operators	6,060	5,874	(3%)	569	(16.0)	29%	100%
Computer Numerically Controlled Tool Programmers	842	846	1%	79	(1.7)	29%	100%
Total	**13,463**	**13,640**	**1%**	**1,391**	**-**	**-**	**-**

[7] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.
[8] Automation risk is calculated based on the percentage of time spent on high-risk compared to low-risk work, the number of high-risk jobs in compatible occupations, and the overall industry automation risk.
[9] Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

WAGES

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill manufacturing technology occupations 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 greater Los Angeles/Orange County region.

Los Angeles County

The majority, 89%, of annual openings for these middle-skill manufacturing technology occupations have entry-level wages below the self-sufficiency standard wage for one adult ($24.03 in Los Angeles County). Typical entry-level hourly wages are in a range between $18.73 and $31.29. (Exhibit 3).

Two occupations have entry-level wages above the self-sufficiency standard wage:

- *Computer numerically controlled tool programmers,* $31.29
- *Industrial engineering technologists and technicians*, $27.49

Experienced workers can expect to earn wages between $30.35 and $47.84, which are higher than the self-sufficiency standard.

Exhibit 3: Earnings for occupations in Los Angeles County

Occupation	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)	Median Annual Earnings*
Industrial Engineering Technologists and Technicians	$27.49	$35.87	$47.34	$74,600
Machinists	$18.73	$24.04	$30.73	$50,000
Computer Numerically Controlled Tool Operators	$22.29	$26.16	$30.35	$54,400
Computer Numerically Controlled Tool Programmers	$31.29	$37.52	$47.84	$78,000

*Rounded to the nearest $100

Orange County

The majority, 87%, of annual openings for middle-skill manufacturing technology occupations have entry-level wages below the self-sufficiency standard wage for one adult ($27.13 in Orange County). Typical entry-level hourly wages are in a range between $18.89 and $31.83 (Exhibit 4).

Two occupations have entry-level wages above the self-sufficiency standard wage:

- *Computer numerically controlled tool programmers,* $31.83
- *Industrial engineering technologists and technicians*, $29.36

Experienced workers can expect to earn wages between $30.81 and $50.07, which are higher than the self-sufficiency standard.

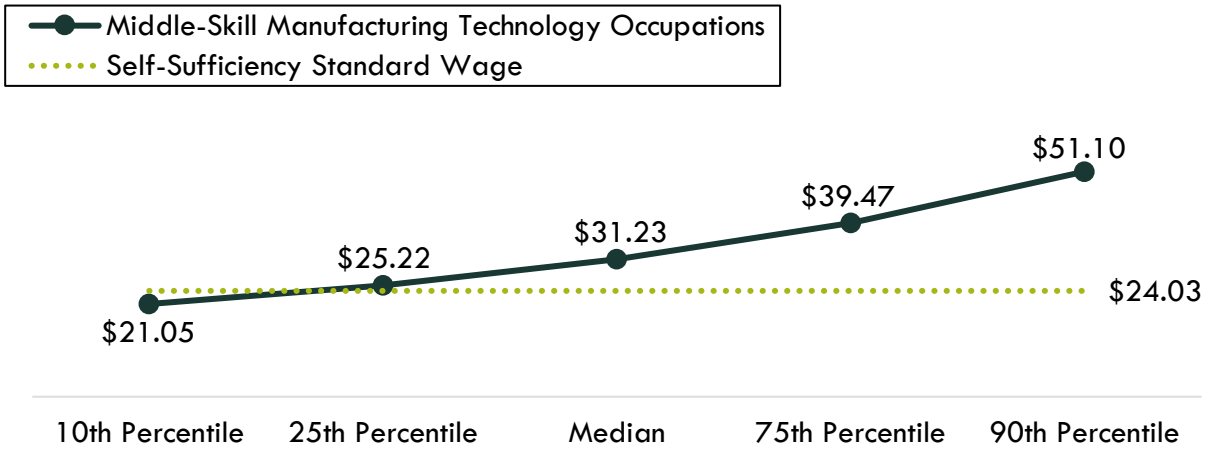
Exhibit 4: Earnings for occupations in Orange County

Occupation	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)	Median Annual Earnings*
Industrial Engineering Technologists and Technicians	$29.36	$38.12	$50.07	$79,300
Machinists	$18.89	$24.23	$30.92	$50,400
Computer Numerically Controlled Tool Operators	$22.63	$26.57	$30.81	$55,300
Computer Numerically Controlled Tool Programmers	$31.83	$38.17	$48.66	$79,400

*Rounded to the nearest $100

Across the greater Los Angeles and Orange County region, the average entry-level hourly earnings for the occupations in this report are $25.22; this is above the living wage for one single adult in Los Angeles County ($24.03). Exhibit 5 shows the average hourly wage for the occupations in this report, for entry-level to experienced workers.

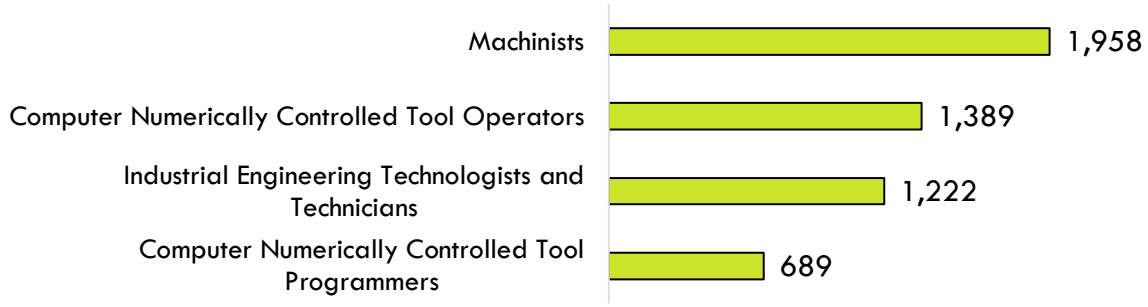
Exhibit 5: Average hourly earnings for target occupations, Los Angeles and Orange counties



JOB POSTINGS

There were 5,258 online job postings related to middle-skill manufacturing technology occupations listed in the past 12 months in Los Angeles and Orange counties. Exhibit 6 displays the number of job postings by occupation. The majority of job postings (37%) were for *machinists*, followed by *computer numerically controlled tool operators* (26%) and *industrial engineering technologists and technicians* (23%).

Exhibit 6: Job postings by occupation (last 12 months), Los Angeles and Orange counties



Job postings were analyzed for the most common job titles, skills, and employers associated with the target occupations in this report (Exhibit 7).

Exhibit 7: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties

Top Job Titles	Top Skills	Top Employers
• CNC machinists • CNC programmers • CNC operators • Manufacturing technicians • Machinists • Production technicians • CNC machine operators • CNC set up operators • CNC lathe machinists • CBC mill machinists	• Machining • Lathes • Computer numerical control (CNC) • Tooling • Mills • Micrometer • Blueprinting • Calipers • CNC machining	• Aerotek* • Volt* • Express Employment Professionals* • Kelly Services* • Howmet Aerospace • Applied Medical Resources Corporation • ManpowerGroup* • Precision Castparts

*Staffing companies

In the greater Los Angeles/Orange County region, 45% of the manufacturing technology job postings listed a minimum educational requirement. Exhibit 8 details the number and percentage of job postings by educational level.

Exhibit 8: Education levels requested in job postings for occupations related to manufacturing technology, Los Angeles and Orange counties

Education Level	Job Postings	% of Job Postings
Bachelor's degree	49	2%
Associate degree	118	5%
High school diploma or vocational training	2,185	93%

EDUCATIONAL ATTAINMENT

In the greater Los Angeles/Orange County region, the majority of annual job openings (88%) typically require a high school diploma or equivalent (Exhibit 9). However, the national-level data indicates between 41% and 50% of workers in the field have completed some college or an associate degree as their highest level of educational attainment. The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

Exhibit 9: Entry-level education preferred by employers nationally, Bureau of Labor Statistics

Occupation	Education Level
Industrial Engineering Technologists and Technicians	Associate degree
Machinists	High school diploma or equivalent
Computer Numerically Controlled Tool Operators	High school diploma or equivalent
Computer Numerically Controlled Tool Programmers	Postsecondary non-degree award

EDUCATIONAL SUPPLY

Community College Supply

Exhibit 10 shows the annual and three-year average number of awards conferred by community colleges in the related TOP codes: Manufacturing and Industrial Technology (0956.00) and Machining and Machine Tools (0956.30). The colleges with the most completions in the region are Santa Ana, Orange Coast, and El Camino.

Exhibit 10: Regional community college awards (certificates and degrees), 2022-2024

TOP Code	Program	College	2021-22 Awards	2022-23 Awards	2023-24 Awards	3-Year Average
0956.00	Manufacturing and Industrial Technology	Cerritos	1	1	5	2
		El Camino	4	2	-	2
		Glendale	1	-	-	0
		LA Trade-Tech	15	3	5	8
		LA Valley	-	2	5	2
		Mt San Antonio	13	26	28	22
		West LA	-	-	2	1
		LA Subtotal	**34**	**34**	**45**	**38**
		Cypress	-	-	4	1
		Fullerton	18	9	12	13
		Irvine	2	-	-	1
		Saddleback	8	4	3	5
		Santa Ana	4	-	-	1
		Santiago Canyon	7	6	2	5

TOP Code	Program	College	2021-22 Awards	2022-23 Awards	2023-24 Awards	3-Year Average
		OC Subtotal	**39**	**19**	**21**	**26**
		Supply Subtotal/Average	**73**	**53**	**66**	**64**
0956.30	Machining and Machine Tools	Cerritos	16	21	33	23
		Compton	16	8	7	10
		El Camino	26	23	34	28
		Glendale	1	2	6	3
		LA Pierce	2	7	5	5
		LA Trade-Tech	7	7	14	9
		LA Valley	6	-	1	2
		Pasadena	3	2	9	5
		LA Subtotal	**77**	**70**	**109**	**85**
		Orange Coast	27	29	46	34
		Santa Ana	81	45	28	51
		OC Subtotal	**108**	**74**	**74**	**85**
		Supply Subtotal/Average	**185**	**144**	**183**	**171**
		Supply Total/Average	**258**	**197**	**249**	**235**

Exhibit 11 displays the community college awards broken down by award type. In this case, the majority of awards issued by community colleges are certificates of achievement (73%).

Exhibit 11: Regional community college awards (certificates and degrees), 2022-2024

Award Type	# of Awards	% of Awards
A.A./A.S. degrees	58	25%
Certificates	171	73%
Noncredit awards	5	2%
	235	**100%**

Other Postsecondary Supply

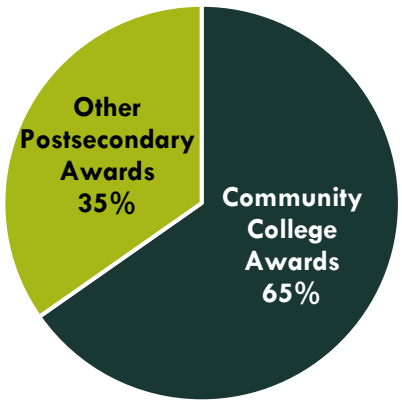
For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for middle-skill manufacturing technology occupations. Exhibit 12 shows the number of awards conferred by these institutions in relevant programs. Due to different data collection periods, the most recent data is from 2021 to 2023. Between 2021 and 2023, other postsecondary college institutions in the region conferred an average of 125 sub-baccalaureate awards. Sub-baccalaureate awards include associate degrees, postsecondary awards, and other academic awards that typically take fewer than four years to complete.

Exhibit 12: Other regional postsecondary awards, 2021-2023

CIP Code	Program	Postsecondary Institution	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
48.0501	Machine Tool Technology/ Machinist	NTMA Training Centers of Southern California	124	113	118	118
		Pomona Unified School District Adult and Career Education	-	1	7	3
48.0503	Machine Shop Technology/ Assistant	Pomona Unified School District Adult and Career Education	2	5	4	4
		Supply Total/Average	**126**	**119**	**129**	**125**

Exhibit 14 shows the proportion of community college awards conferred in the greater Los Angeles/Orange County region compared to the number of other postsecondary awards for the programs in this report. The majority of awards conferred in these programs are awarded by community colleges in the greater Los Angeles/Orange County region.

Exhibit 14: Percentage of community college awards compared to other postsecondary institution awards in the Los Angeles/Orange County region



APPENDIX: OCCUPATION DESCRIPTIONS

LA COE prepared this report to provide regional labor market supply and demand data related to these target occupations:

- ***Industrial Engineering Technologists and Technicians*** **(17-3026)** Apply engineering theory and principles to problems of industrial layout or manufacturing production, usually under the direction of engineering staff. May perform time and motion studies on worker operations in a variety of industries for purposes such as establishing standard production rates or improving efficiency.[10]

[10] Industrial Engineering Technologists and Technicians (bls.gov)

- ***Computer Numerically Controlled Tool Operators* (51-9161)** Operate computer-controlled tools, machines, or robots to machine or process parts, tools, or other work pieces made of metal, plastic, wood, stone, or other materials. May also set up and maintain equipment.[11]
- ***Computer Numerically Controlled Tool Programmers* (51-9162)** Develop programs to control machining or processing of materials by automatic machine tools, equipment, or systems. May also set up, operate, or maintain equipment.[12]
- ***Machinists* (51-4041)** Set up and operate a variety of machine tools to produce precision parts and instruments out of metal. Includes precision instrument makers who fabricate, modify, or repair mechanical instruments. May also fabricate and modify parts to make or repair machine tools or maintain industrial machines, applying knowledge of mechanics, mathematics, metal properties, layout, and machining procedures.[13]

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DATA SOURCES

- O*NET Online
- Lightcast (formerly 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)

[11] Metal and Plastic Machine Workers (bls.gov)
[12] Ibid.
[13] Machinists and Tool and Die Makers (bls.gov)