

**Program Endorsement Brief: 0956.30/Machining and Machine Tools
Manufacturing Technology**

Orange County Center of Excellence, March 2022

Summary Analysis

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 Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to one middle-skill occupation: *machinists* (51-4041). 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 for *machinists* in the region. Furthermore, while this occupation typically requires a high school diploma or equivalent, more than one-third of workers in the field have completed some college or an associate degree as their highest level of education. However, entry-level wages are lower than the living wage in both Los Angeles and Orange counties. **Therefore, due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **1,496 jobs available annually** in the region due to retirements and workers leaving the field, **which is more than the 562 awards conferred annually** by educational institutions in the region.
- **Living Wage Criteria** –Within Orange County, **typical entry-level hourly wages** for *machinists* are **\$16.64, which is lower than the living wage** for one adult in the region (\$20.63 in Orange County).²

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.

² Living wage data was pulled from California Family Needs Calculator on 1/10/2022. For more information, visit the California Family Needs Calculator website: <https://insightcced.org/family-needs-calculator/>.

- However, **median hourly wages for this occupation are higher than the living wage estimate**, indicating that workers can attain the living wage with some work experience.
- **Educational Criteria** –The Bureau of Labor Statistics (BLS) lists **a high school diploma or equivalent** as the typical entry-level education for *machinists*.
 - However, the national-level educational attainment data indicates **41.2% of workers in the field have completed some college or an associate degree** as their highest level of education.

Supply:

- There are **10 community colleges** in the LA/OC region that issue awards related to *machinists*, conferring an average of **311 awards annually** between 2017 and 2020.
- Between 2016 and 2019, there was an average of **251 awards conferred annually** in related training programs by non-community college institutions, all of which were generated by **two individual non-community college institutions throughout** the region.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for *machinists*. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to decrease by 6% through 2025. However, there will be nearly 1,500 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 impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the 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	9,819	9,099	(720)	(7%)	954
Orange	5,500	5,297	(203)	(4%)	542
Total	15,319	14,396	(923)	(6%)	1,496

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.

Wages

The labor market endorsement in this report considers the entry-level hourly wages for *machinists* in Orange County as they relate to the county's living wage. Los Angeles 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.

Orange County: The typical entry-level hourly wages for *machinists* are \$16.64, which is below the living wage for one adult (\$20.63 in Orange County). Experienced workers can expect to earn wages of \$28.26, which is higher than the living wage estimate. Orange County's average wages are below the average statewide wage of \$23.89 for this occupation.

Los Angeles County: The typical entry-level hourly wages for *machinists* are \$16.21, which is below the living wage for one adult (\$18.10 in Los Angeles County). Experienced workers can expect to earn wages of \$27.58, which is higher than the living wage estimate. Los Angeles County's average wages are below the average statewide wage of \$23.89 for this occupation.

Job Postings

There were 1,591 online job postings related to *machinists* listed in the past 12 months. The highest number of job postings were for CNC machinists, machinists, CNC lathe machinists, and lathe CNC machinists. The top skills were machining, computer numerical control (CNC), lathes, micrometers, and machinery. The top three employers, by number of job postings, in the region were Flowserve Corporation, Orchid Orthopedics, and Applied Medical Resources Corporation.

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 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 a high school diploma or equivalent as the typical entry-level education for *machinists*. However, the national-level educational attainment data indicates 41.2% of workers in the field have completed some college or an associate degree as their highest level of education. Of the 53% of machinist job postings listing a minimum education requirement in Los Angeles/Orange County, 95.7% (800) requested high school or vocational training, 2.2% (18) requested an associate degree, and 0.7% (6) requested a bachelor's degree.

Educational Supply

Community College Supply—Exhibit 2 shows the three-year average number of awards conferred by community colleges in the related TOP code: Machining and Machine Tools (0956.30). The colleges with the most completions in the region are: Santa Ana, Orange Coast, Cerritos, and El Camino. Over the past 12 months, there were three other related program recommendation requests from regional community colleges.

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

TOP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
0956.30	Machining and Machine Tools	Cerritos	38	30	37	35
		Compton	1	19	12	11
		El Camino	32	47	22	34
		Glendale	-	7	7	5
		LA Pierce	10	12	8	10
		LA Trade	17	14	4	12
		LA Valley	3	6	3	4
		LA Subtotal	101	135	93	110
		Fullerton	9	-	-	3
		Orange Coast	92	116	74	94
		Santa Ana	78	134	102	105
		OC Subtotal	179	250	176	202
		Supply Total/Average			280	385

Non-Community College Supply—For a comprehensive regional supply analysis, it is also important to consider the supply from other institutions in the region that provide training programs for *machinists*. Exhibit 3 shows the annual and three-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Code: Machine Tool Technology/Technologist (48.0501). 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 251 awards annually in related training programs.

Exhibit 3: Regional non-community college awards, 2016-2019

CIP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
48.0501	Machine Tool Technology/Technologist	NTMA Training Centers of Southern California	276	233	225	245
		Pomona Unified School District Adult and Career Education	3	7	9	6
Supply Total/Average			279	240	234	251

Appendix A: Occupational demand and wage data by county

Exhibit 4. 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)
Machinists (51-4041)	5,500	5,297	(203)	(4%)	542	\$16.64	\$21.52	\$28.26

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)
Machinists (51-4041)	9,819	9,099	(720)	(7%)	954	\$16.21	\$20.98	\$27.58

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings
Machinists (51-4041)	15,319	14,396	(923)	(6%)	1,496

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor's Office Curriculum Inventory (COCI 2.0)

For more information, please contact:

Jesse Crete, Ed. D., Director
 Center of Excellence, Orange County
crete_jesse@rsccl.edu

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