

**Program Endorsement Brief: 0935.00/Electro-Mechanical Technology**  
**Industrial Electronics Technician; Industrial PLC Technician**  
Orange County Center of Excellence, February 2021

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**Summary Analysis**

<b>Program Endorsement:</b>	<b>Endorsed: All Criteria Met</b> <input checked="" type="checkbox"/>	<b>Endorsed: Some Criteria Met</b> <input type="checkbox"/>	<b>Not Endorsed</b> <input type="checkbox"/>
<b>Program Endorsement Criteria</b>			
<b>Supply Gap:</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Living Wage: (Entry-Level, 25<sup>th</sup>)</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Education:</b>	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
<b>Emerging Occupation(s)</b>			
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: *electro-mechanical and mechatronics technologists and technicians* (17-3024). Middle-skill occupations typically require some postsecondary education, but less than a bachelor’s degree.<sup>1</sup> 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.

In addition to traditional labor market information, this report analyzes online job postings for 21 job titles that are closely related to industrial automation to better understand the fundamental knowledge, skills, and abilities (KSAs) that are typically required for automation roles. 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 *electro-mechanical and mechatronics technologists and technicians* in the region. Furthermore, the majority of annual openings for this occupation typically require an associate degree, and entry-level wages are exceed the living wage in both Los Angeles and Orange counties. **Therefore, due to all 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 **101 jobs available annually** in the region due to workers leaving the field, **which is more than the 2 awards conferred annually** by educational institutions in the region.

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<sup>1</sup> 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.

- Additionally, there were **674 online job postings** related to *electro-mechanical and mechatronics technologists and technicians* listed in the past 12 months, and **2,907 online job postings for job titles related to industrial automation** for which this program trains.
- **Living Wage Criteria** –Within Orange County, **typical entry-level hourly wages** for *electro-mechanical and mechatronics technologists and technicians* are **\$23.45, which is higher than the California Family Needs Calculator** hourly wage (living wage) for one adult in the region \$17.36 in Orange County).<sup>2</sup>
- **Educational Criteria** – The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for *electro-mechanical and mechatronics technologists and technicians*.
  - Furthermore, the national-level educational attainment data indicates **50.8% of workers in the field have completed some college or an associate degree.**

#### Supply:

- There are **2 community colleges** in the LA/OC region that issue awards related to electro-mechanical technology, conferring an average of **2 awards annually** between 2016 and 2019.
- There are currently no other education institutions in the region that provide training programs for *electro-mechanical and mechatronics technologists and technicians*.

#### Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for *electro-mechanical and mechatronics technologists and technicians*. In Los Angeles/Orange County, the number of jobs related to this occupation is projected to decrease by 3% through 2024. However, there will be around 100 job openings per year through 2024 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.*

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<sup>2</sup> Living wage data was pulled from California Family Needs Calculator on 1/27/2021. For more information, visit the California Family Needs Calculator website: <https://insightcced.org/2018-family-needs-calculator/>.

**Exhibit 1: Occupational demand in Los Angeles and Orange Counties<sup>3</sup>**

Geography	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Los Angeles	659	629	(30)	(5%)	63
Orange	386	380	(6)	(2%)	38
<b>Total</b>	<b>1,045</b>	<b>1,009</b>	<b>(36)</b>	<b>(3%)</b>	<b>101</b>

### Wages

The labor market endorsement in this report considers the entry-level hourly wages for *electro-mechanical and mechatronics technologists and technicians* 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 this occupation are \$23.45, which is above the living wage for one adult (\$17.36 in Orange County). Experienced workers can expect to earn \$37.32, which is also higher than the living wage estimate. Orange County’s average wages are above the average statewide wage of \$29.96 for these occupations.

**Los Angeles County**— The typical entry-level hourly wages for this occupation are \$22.55, which is above the living wage for one adult (\$15.04 in Los Angeles County). Experienced workers can expect to earn \$35.95, which is also higher than the living wage estimate. Los Angeles County’s average wages are above the average statewide wage of \$29.96 for these occupations.

### Job Postings

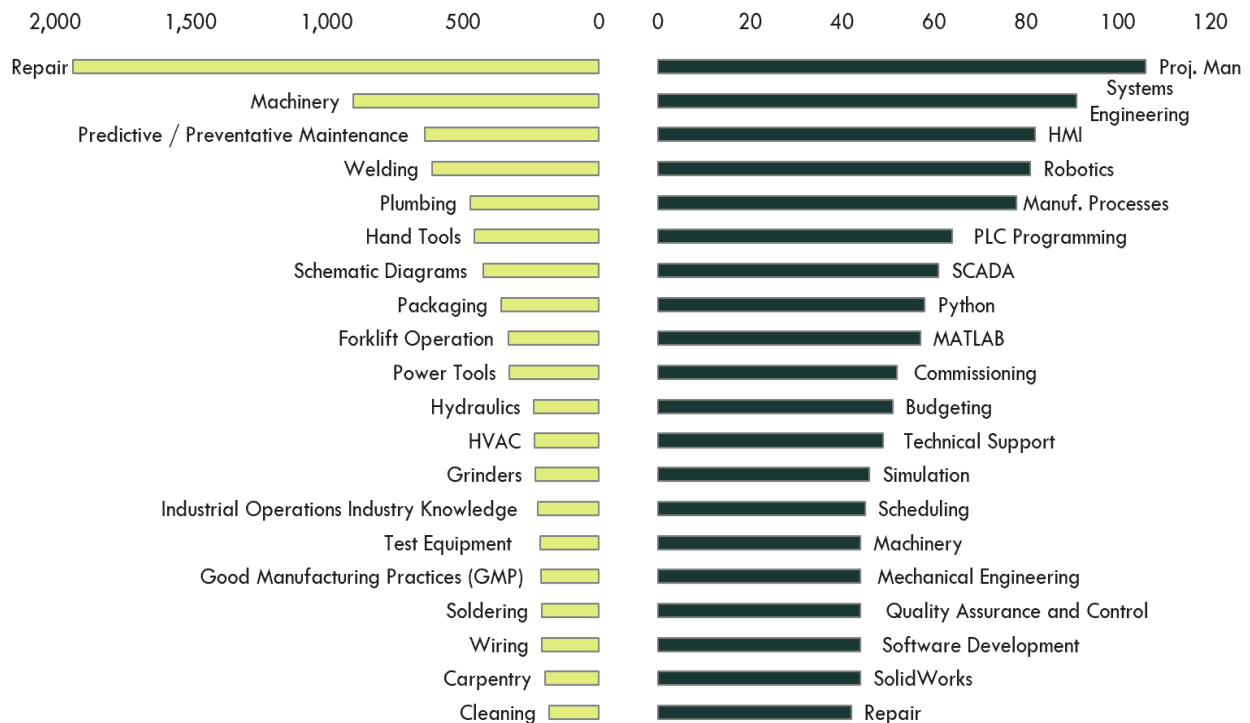
There were 674 online job postings related to *electro-mechanical and mechatronics technologists and technicians* listed in the past 12 months. The highest number of job postings were for calibration technicians, electro-mechanical assemblers, electro-mechanical technicians, instrumentation technicians, and electronics technicians. The top skills were: repair, calibration, test equipment, soldering, and hand tools. The top three employers, by number of job postings, in the region were: Asurion, Northrop Grumman, and Dignity Health.

To better understand the demand for positions specifically related to industrial automation roles and related skills, this section analyzes online job postings for 21 job titles related to automation. The full list of job titles is included in Appendix B. Over the past 12 months, there were 2,907 online job postings related to these automation job titles. The occupations with the highest number of job posting were *industrial machinery mechanics, manufacturing production technicians, and maintenance and repair workers, general*. The top job titles were maintenance mechanics, manufacturing technicians, and electronic technicians. The top employers, by number of job postings, in the region were: Northrop Grumman, Boeing, Jones Lang Lasalle Incorporated, and B. Braun Medical Incorporated.

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

Exhibit 2 shows the top 20 skills for industrial automation job titles requested in online job postings by education level. Postings that request an associate degree or less are related to maintenance and repair, while postings that request a bachelor's degree or above are related to more specialized areas of automation, engineering, and project management. The top five requested skills in postings that require an associate degree or less are repair, machinery, predictive/preventative maintenance, welding, and plumbing. The top five requested skills in postings that require a bachelor's degree or above are project management, systems engineering, Human Machine Interface (HMI), robotics, and manufacturing processes.

**Exhibit 2: Top 20 industrial automation skills listed in online job postings by education level**



*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 an associate degree as the typical entry-level education for *electro-mechanical and mechatronics technologists and technicians*. Furthermore, the national-level educational attainment data indicates 50.8% of workers in the field have completed some college or an associate degree. Of the 60% of *electro-mechanical and mechatronics technologists and technicians* job postings listing a minimum education requirement in Los Angeles/Orange County, 76% (306) requested a high school diploma, 18% (73) requested an associate degree, and 6% (26) requested a bachelor's degree.

## Educational Supply

**Community College Supply**—Exhibit 3 shows the three-year average number of awards conferred by community colleges in the related TOP code: Electro-Mechanical Technology (0935.00). The only colleges in the region with current programs are Orange Coast and Santa Ana. Over the past 12 months, there were two other related program recommendation requests from regional community colleges.

Currently, there are no other institutions in the region that provide training programs for *electro-mechanical and mechatronics technologists and technicians*.

**Exhibit 3: Regional community college awards (certificates and degrees), 2016-2019**

TOP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
0935.00	Electro-Mechanical Technology	Orange Coast	-	3	2	2
		Santa Ana	-	-	1	0
		<b>OC Subtotal</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>2</b>
<b>Supply Total/Average</b>			<b>0</b>	<b>3</b>	<b>3</b>	<b>2</b>

## Appendix A: Occupational demand and wage data by county

**Exhibit 4. Orange County**

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 <sup>th</sup> Percentile)
Electro-Mechanical and Mechatronics Technologists and Technicians (17-3024)	386	380	(6)	(2%)	38	\$23.45	\$29.85	\$37.32

**Exhibit 5. Los Angeles County**

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 <sup>th</sup> Percentile)
Electro-Mechanical and Mechatronics Technologists and Technicians (17-3024)	659	629	(30)	(5%)	63	\$22.55	\$28.73	\$35.95

### Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings
Electro-Mechanical and Mechatronics Technologists and Technicians (17-3024)	1,045	1,009	(36)	(3%)	101

#### 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)

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