Electro-Mechanical Technology (TOP: 0935.00)

October 2020

Prepared by the South Central Coast Center of Excellence for Labor Market Research

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Program Recommendation

This report was compiled by the South Central Coast[1] Center of Excellence to provide regional labor market data for the program recommendation – Electro-Mechanical Technology. This report can help determine whether there is demand in the local labor market that is not being met by the supply from programs of study (CCC and non-CCC) that align with this occupation group.

Key Findings

- In the South Central Coast region, the number of jobs related to Electro-Mechanical Technology are expected to **decrease** for Electrical and Electronic Engineering Technicians and Electro-Mechanical Technicians, and **increase** for Industrial Machinery Mechanics and Electrical Power-Line Installers and Repairers.

- Electro-Mechanical Technology is anticipated to experience a **medium risk of automation** for Electrical and Electronic Engineering Technicians and a **high risk for the other three related occupations.**

- In 2019 there were 4 regional completions in programs related to the occupation identified as related to Electro-Mechanical Technology and 347 openings, indicating an **undersupply**.

- Typical entry-level education is **a high school diploma or equivalent** for Industrial Machinery Mechanics and Electrical Power-Line Installers and Repairers; and an **Associate's degree** for Electrical and Electronic Engineering Technicians and Electro-Mechanical Technicians.

- Completers of Statewide Electro-Mechanical Technology programs from the 2017-2018 academic year had a **median annual wage upon completion of $42,584.**

- 67% of students are **employed within a year** after completing a program (statewide).

- 69% of students **attained a living wage** within a year of completion (statewide).

- +35% **change in earnings** for completers (statewide).

- 56% of students were **part time**, 10% **skill builders**, 37% **first-generation**, and 82% **economically disadvantaged** (statewide).

- Regionally, 20 students **transferred** to a four-year institution.

[1] The South Central Coast Region consists of San Luis Obispo County, Santa Barbara County, Ventura County, and the following cities from North Los Angeles County: Canyon Country, Castaic, Lake Hughes, Lancaster, Littlerock, Llano, Newhall, Palmdale, Pearblossom, Santa Clarita, Stevenson Ranch, and Valencia.

Occupation Codes and Descriptions

There are four occupations in the standard occupational classification (SOC) system that were identified as related to Electro-Mechanical Technology for this analysis. The occupation title and description, as well as reported job titles are included in Exhibit 1.

Exhibit 1 – Occupation, description, and sample job titles

SOC Code	Title	Description	Sample of Reported Job Titles
17-3023	**Electrical and Electronic Engineering Technicians**	Apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, calibrate, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions.	Digital Tech (Digital Technician), Electrical Technician, Electronics Engineering Technician, Electronics Technician, Engineering Technician, Failure Analysis Technician (FA Technician), Refurbish Technician (Refurb Tech), Senior Electronics Technician, Test Technician
17-3024	**Electro-Mechanical Technicians**	Operate, test, maintain, or calibrate unmanned, automated, servo-mechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment at worksites, such as oil rigs, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.	Electro-Mechanic, Electro-Mechanical Technician (E/M Technician), Electronic Technician, Engineering Technician, Laboratory Technician (Lab Technician), Maintenance Technician, Mechanical Technician, Product Test Specialist, Test Technician, Tester
49-9041	**Industrial Machinery Mechanics**	Repair, install, adjust, or maintain industrial production and processing machinery or refinery and pipeline distribution systems.	Fixer, Industrial Machinery Mechanic, Industrial Mechanic, Loom Fixer, Machine Adjuster, Maintenance Mechanic, Maintenance Technician, Master Mechanic, Mechanic, Overhauler
49-9051	**Electrical Power-Line Installers and Repairers**	Install or repair cables or wires used in electrical power or distribution systems. May erect poles and light or heavy duty transmission towers.	A Class Lineman, Apprentice Lineman Third Step, Class A Lineman, Electric Lineman, Electrical Lineman (Power), Electrical Lineworker, Journeyman Lineman, Lineman, Lineworker, Power Lineman

Source: O*NET Online

Current and Future Employment

In the South Central Coast region, the number of jobs related to Electro-Mechanical Technology are expected to decrease for Electrical and Electronic Engineering Technicians and Electro-Mechanical Technicians, and increase for Industrial Machinery Mechanics and Electrical Power-Line Installers and Repairers.

Exhibit 2 – Five-year projections for Electro-Mechanical Technology in the South Central Coast region

SOC	Occupation	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change
17-3023	**Electrical and Electronic Engineering Technicians**	1,497	1,461	-36	-2%
17-3024	**Electro-Mechanical Technicians**	106	105	-1	-1%
49-9041	**Industrial Machinery Mechanics**	1,241	1,319	78	6%
49-9051	**Electrical Power-Line Installers and Repairers**	396	484	88	22%

Source: Economic Modeling Specialists International (EMSI)

Earnings

In the South Central Coast region, the average wage for the listed occupations is $32.77 per hour.

Exhibit 3 contains hourly wages and annual average earnings for these occupations. Entry-level hourly earnings are represented by the 25th percentile of wages, median hourly earnings are represented by the 50th percentile of levels of wages, and experienced hourly earnings are represented by the 75th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for Electro-Mechanical Technology in the South Central Coast region

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
17-3023	**Electrical and Electronic Engineering Technicians**	$26.26	$34.30	$43.33
17-3024	**Electro-Mechanical Technicians**	$22.51	$31.73	$44.29
49-9041	**Industrial Machinery Mechanics**	$23.59	$29.59	$37.44
49-9051	**Electrical Power-Line Installers and Repairers**	$29.57	$45.82	$57.85

Source: Economic Modeling Specialists International (EMSI)

Employer Job Postings

In this research brief, real-time labor market information is used to provide a more nuanced view of the current job market, as it captures job advertisements for occupations relevant to the field of study. Employer job postings are consulted to understand who is looking for electro-mechanical technicians, and what they are looking for in potential candidates. To identify job postings related to Electro-Mechanical Technology following standard occupational classification was used:

17-3023	Electrical and Electronic Engineering Technicians
17-3024	Electro-Mechanical Technicians
49-9041	Industrial Machinery Mechanics
49-9051	Electrical Power-Line Installers and Repairers

Top Occupations

In 2019, there were 608 employer postings for the occupations related to Electro-Mechanical Technology.

Exhibit 4 – Top occupations in job postings and risk of automation tables

SOC Code	Occupation	Job Postings, Full Year 2019
17-3023	**Electrical and Electronic Engineering Technicians**	271
17-3024	**Electro-Mechanical Technicians**	170
49-9041	**Industrial Machinery Mechanics**	159
49-9051	**Electrical Power-Line Installers and Repairers**	8

Source: Labor Insight/Jobs (Burning Glass)

SOC Code	Occupation	Risk of Automation
17-3023	**Electrical and Electronic Engineering Technicians**	Medium
17-3024	**Electro-Mechanical Technicians**	High
49-9041	**Industrial Machinery Mechanics**	High
49-9051	**Electrical Power-Line Installers and Repairers**	High

Source: Labor Insight/Jobs (Burning Glass)

Top Titles

The top job titles for employers posting ads for jobs related to Electro-Mechanical Technology are listed in Exhibit 5. Quality Test Technician is mentioned as the job title in 8% of all relevant job postings (50 postings).

Exhibit 5 –Job titles

Title	Job Postings, Full Year 2019
Test Technician	50
Maintenance Mechanic	35
Mechanic	34
Electronics Technician	25
Calibration Technician	17

Source: Labor Insight/Jobs (Burning Glass)

Top Employers

Exhibit 6 lists the major employers hiring professionals in the Electro-Mechanical Technology field. The top employer posting job ads was General Atomics. The top worksite cities in the region for these occupations were Palmdale, Camarillo, Oxnard, Santa Clarita, and Thousand Oaks.

Exhibit 6 – Top employers (n=468)

Employer	Job Postings, Full Year 2019
General Atomics	27
Lockheed Martin Corporation	26
Northrop Grumman	22
US Government	12
Jt3 LLC	11

Source: Labor Insight/Jobs (Burning Glass)

Skills

Repair is the most sought after skill for employers hiring for jobs related to Electro-Mechanical Technology.

Exhibit 7 –Job skills (n=543)

Skills	Job Postings, Full Year 2019
Repair	366
Test Equipment	169
Schematic Diagrams	130
Soldering	114
Machinery	105
Calibration	103
Hand Tools	94

Source: Labor Insight/Jobs (Burning Glass)

Industry Concentration

Exhibit 8 shows the industries with most Electro-Mechanical Technology postings in the South Central Coast. Note: 31% of records have been excluded because they do not include an industry. As a result, the chart below may not be representative of the full sample.

Exhibit 8 – Industries employing the most in the Electro-Mechanical Technology field, 2019

Industry	Occupation Group Jobs in Industry	% of Occupation Group in Industry
Manufacturing	198	46.9%
Professional, Scientific, and Technical Services	97	23.0%
Public Administration	31	7.3%
Real Estate and Rental and Leasing	15	3.6%
Mining, Quarrying, and Oil and Gas Extraction	14	3.3%

Source: Labor Insight/Jobs (Burning Glass)

Education and Training

Exhibit 9 shows the typical entry-level education requirement for the occupations of interest, along with the typical on-the-job training needed to attain competency in the occupation.

Exhibit 9 – Education and training requirements

SOC	Occupation	Typical entry-level education	Typical on-the-job training
17-3023	**Electrical and Electronic Engineering Technicians**	Associate's degree	None
17-3024	**Electro-Mechanical Technicians**	Associate's degree	None
49-9041	**Industrial Machinery Mechanics**	High school diploma or equivalent	Long-term on-the-job equipment
49-9051	**Electrical Power-Line Installers and Repairers**	High school diploma or equivalent	Long-term on-the-job equipment

Source: Bureau of Labor Statistics Employment Projections (Educational Attainment)

Regional Completions and Openings

There were 4 regional completions (2019) and 347 regional openings (2019) in the South Central Coast region in programs related to the occupations identified as related to Electro-Mechanical Technology.

Exhibit 10 – Completions and Openings

3 Regional Institutions had Related Programs (2019)	**4** Regional Completions (2019)	**347** Annual Openings (2019)

Source: Economic Modeling Specialists International (EMSI)

Related Programs

CIP Code	Program	Completions (2019)
15.0000	Engineering Technology, General	6
15.0303	Electrical, Electronic and Communications Engineering Technology/Technician	0
15.9999	Engineering Technologies and Engineering-Related Fields, Other	0

Source: Economic Modeling Specialists International (EMSI)

Student Outcomes

The CTE LaunchBoard provides student outcome data on the effectiveness of CTE programs. The following student outcome information was collected from exiters of the Electro-Mechanical Technology Program (TOP: 0935.00) for the 2017-18 academic year.

- Completers of Statewide Electro-Mechanical Technology programs from the 2017-2018 academic year had a **median annual wage upon completion of $42,584.**
- 67% of students are **employed within a year** after completing a program (statewide).
- 69% of students **attained a living wage** within a year of completion (statewide).
- +35% **change in earnings** for completers (statewide).
- 56% of students were **part time**, 10% **skill builders**, 37% **first-generation**, and 82% **economically disadvantaged** (statewide).
- Regionally, 20 students **transferred** to a four-year institution.

Source: CTE LaunchBoard

Sources

O*Net Online, Labor Insight/Jobs (Burning Glass), Economic Modeling Specialists International (EMSI), MIT Living Wage Calculator, Bureau of Labor Statistics (BLS) Education Attainment, California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart, CTE LaunchBoard, Statewide CTE Outcomes Survey, Employment Development Department Unemployment Insurance Dataset

Notes

Data included in this analysis represent the labor market demand for relevant positions most closely related to Electro-Mechanical Technology. Traditional labor market information was used to show current and projected employment based on data trends, as well as annual average awards granted by regional community colleges. Real-time labor market information captures job post advertisements for occupations relevant to the field of study and can signal demand and show what employers are looking for in potential employees, but is not a perfect measure of the quantity of open positions. All representations have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. The most recent data available at the time of the analysis was examined; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.