Electronics Engineering Technology (Mechatronics)

February 2024

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 – Electronics Engineering. 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 that align with this occupation group.

Key Findings

- In 2022, there were 2,067 jobs for Electronics Engineering-related occupations in the South Central Coast Region.

- This number is expected to increase by 2% through 2027.

- Projections show approximately 206 annual openings in the region. An average of 70 awards were conferred in relevant programs, indicating an undersupply.

- The typical entry-level education for all three occupations in this report is an associate degree.

- There were 1,047 online job postings for these three Electronics Engineering-related occupations over the past 12 months. The highest number of postings were for Test Technicians, Engineering Technicians, and Electronics Technicians.

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[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 three occupations in the standard occupational classification (SOC) system that were identified as related to Electronics Engineering for this analysis. The occupation titles and descriptions, 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 Technologists and Technicians**	Apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, adjust, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions.	Communications Technologist, Electrical Engineering Technician, Electrical Technician, Electronics Engineering Technician, Electronics Technician, Engineering Technician (Engineering Tech), Engineering Technologist, System Technologist, Technologist
17-3024	**Electro-Mechanical and Mechatronics Technologists and Technicians**	Operate, test, maintain, or adjust unmanned, automated, servomechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment to observe or record visual information at sites such as oil rigs, crop fields, buildings, or for similar infrastructure, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.	Automation Technician (Automation Tech), Electro-Mechanic, Electromechanical Assembler (EM Assembler), Electromechanical Technician (EM Technician), Electronics Technician (Electronics Tech), Mechanical Technician (Mechanical Tech), Process Control Tech, Product Test Specialist, Test Engineering Technician (Test Engineering Tech), Test Technician (Test Tech)

SOC Code	Title	Description	Sample of Reported Job Titles
17-3029	**Engineering Technologists and Technicians, Except Drafters, All Other**	All engineering technologists and technicians, except drafters, not listed separately.	N/A

Source: O*NET Online

Current and Future Employment

In the South Central Coast region, the number of jobs related to Electronics Engineering occupations are expected to grow 2% through 2027. The occupation –Electrical and Electronic Engineering Technologists and Technicians– is expected to have the highest number of annual openings (111).

Exhibit 2 – Five-Year Projections for Electronics Engineering Occupations in the South Central Coast Region

| SOC	Occupation	2022 Jobs	2027 Jobs	2022-2027 Change	2022-2027 % Change	Annual Openings
17-3023	Electrical and Electronic Engineering Technologists and Technicians	1,113	1,119	6	1%	111
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	109	117	8	7%	10
17-3029	Engineering Technologists and Technicians, Except Drafters, All Other	845	870	25	3%	85
	Total	**2,067**	**2,106**	**39**	**2%**	**206**

Source: Lightcast™ Analyst 2023

Earnings

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 wages, and experienced hourly earnings are represented by the 75th percentile of wages, demonstrating various levels of employment.

Exhibit 3 – Earnings for Electronics Engineering Occupations in the South Central Coast Region

SOC	Occupation	Entry-Level Hourly Earnings	Median Hourly Earnings	Experienced Hourly Earnings
17-3023	Electrical and Electronic Engineering Technologists and Technicians	$28.77	$39.76	$49.19
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	$23.82	$31.62	$35.60
17-3029	Engineering Technologists and Technicians, Except Drafters, All Other	$28.33	$36.11	$46.72

Source: Lightcast™ Analyst 2023

Exhibit 3b – Earnings for Electronics Engineering Occupations in the South Central Coast Region
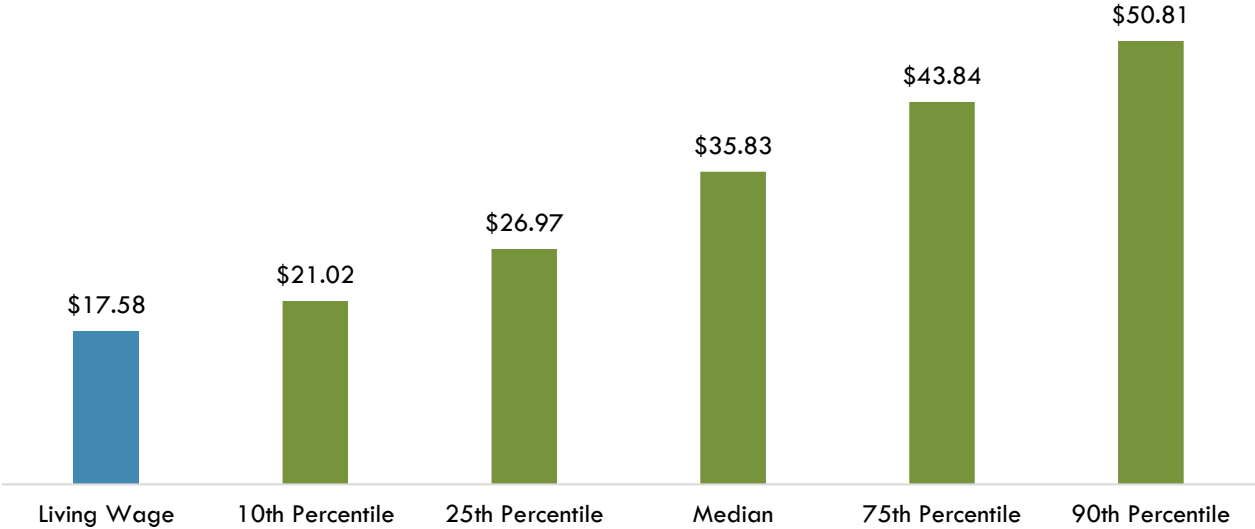
Source: Family Needs Calculator (Living wage is based on Single Adult households with no children); Lightcast™ Analyst 2023

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 professionals in a given field, and what they are looking for in potential candidates. To identify job postings related to Electronics Engineering the following standard occupational classifications were used:

17-3023	Electrical and Electronic Engineering Technologists and Technicians
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians
17-3029	Engineering Technologists and Technicians, Except Drafters, All Other

Top Occupations

In 2023, there were 1,047 employer postings for occupations related to Electronics Engineering.

Exhibit 4 – Top Occupations by Job Postings

SOC Code	Occupation	Job Postings, Full Year 2023
17-3023	Electrical and Electronic Engineering Technologists and Technicians	483
17-3029	Engineering Technologists and Technicians, Except Drafters, All Other	370
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	194
	Total	**1,047**

Source: Lightcast™ Analyst 2023

Top Titles

The top job titles for employers posting ads for jobs related to Electronics Engineering are listed in Exhibit 5. Test Technicians is mentioned as the job title in 131 job postings.

Exhibit 5 – Job Titles

Title	Job Postings, Full Year 2023
Test Technicians	131
Engineering Technicians	119
Electronics Technicians	102
Engineers	39
Calibration Technicians	38
Electrical Technicians	33
Low Voltage Technicians	31
Electromechanical Technicians	27

Source: Lightcast™ Analyst 2023

Top Employers

Exhibit 6 lists the major employers hiring professionals in the Electronics Engineering field. The top employer posting job ads was Northrop Grumman. The top worksite cities for these occupations were Simi Valley, Oxnard, Ventura, Camarillo, San Luis Obispo, and Santa Barbara.

Exhibit 6 – Top Employers

Employer	Job Postings, Full Year 2023
Northrop Grumman	30
Parker Hannifin	24
Mercury Systems	24
AeroVironment	24
Applied Industrial Technologies	15
Range Generation Next	14
Bruker	13
Entegris	12

Source: Lightcast™ Analyst 2023

Skills

The tables in Exhibit 7 list employers' most commonly requested skills in job postings related to Electronics Engineering. Test equipment is the most sought-after specialized skill for employers. Troubleshooting was the most requested baseline skill. Microsoft Office was the most requested software and programming skill.

Exhibit 7 – Specialized Skills

Skills	Job Postings, Full Year 2023
Test Equipment	197
Electronics	178
Hand Tools	149
Electromechanics	149
Soldering	135
Electrical Wiring	109
Power Tool Operation	102
Calibration	100
Automation	96
Blueprinting	85

Source: Lightcast™ Analyst 2023

Exhibit 7b – Baseline Skills

Skills	Job Postings, Full Year 2023
Troubleshooting (Problem Solving)	393
Communication	285
Operations	220
Detail Oriented	162
Management	133
Microsoft Office	114
Problem Solving	102
English Language	101
Lifting Ability	97
Microsoft Excel	92

Source: Lightcast™ Analyst 2023

Exhibit 7c – Software and Programming Skills

Skills	Job Postings, Full Year 2023
Microsoft Office	114
Microsoft Excel	92
Microsoft PowerPoint	37
Microsoft Outlook	34
Microsoft Word	28
Python (Programming Language)	19
SolidWorks (CAD)	17
Spreadsheets	15

Source: Lightcast™ Analyst 2023

Education and Training

Exhibit 8 shows the typical entry-level education requirement for occupations of interest, along with the typical on-the-job training needed to attain competency in the occupation.

Exhibit 8 – Education and Training Requirements

SOC	Occupation	Typical entry-level education	Typical on-the-job training
17-3023	Electrical and Electronic Engineering Technologists and Technicians	Associate degree	None
17-3024	Electro-Mechanical and Mechatronics Technologists and Technicians	Associate degree	None
17-3029	Engineering Technologists and Technicians, Except Drafters, All Other	Associate degree	None

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

Regional Completions and Openings

Between 2019 and 2022, there were 70 awards conferred in the South Central Coast region aligned with programs related to the occupations in this report.

Exhibit 9 – Three-Year Average of Awards Conferred in the Region

TOP Code	Program	3-Year Average (2019-2022)
0924.00	Engineering Technology, General	5
0934.00	Electronics and Electric Technology	47
0935.00	Electro-Mechanical Technology	0
0956.00	Manufacturing and Industrial Technology	18
	Average	**70**

Source: Datamart

CCC Awards

Exhibit 10 shows the average number of awards granted by community colleges within programs historically dedicated to training for the three occupations included in this report.

Exhibit 10 – CCC Awards in the South Central Coast Region, 2019-2022 Average

CCC Programs	3-Year Average
Allan Hancock	6
Antelope Valley	36
Canyons	9
Cuesta	15
Moorpark	2
Ventura	2

Source: DataMart, 2023

Sources

O*Net Online, Lightcast™ Analyst 2023, 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 Electronics Engineering. 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.